

April 29, 2021

**Virginia Coastal Zone Management Program
Semiannual Section B.2-4 Report
For the Period from October 1, 2020 – March 31, 2021**

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SECTION B.2 PERMIT ADMINISTRATION, MONITORING AND ENFORCEMENT

1) DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ)

a) DEQ – Virginia Coastal Zone Management Program

Virginia CZM Program staff continued to work with our partner agencies to implement the Program over the last 6 months. For a full description of staff activities, please refer to the Section A report for Task 1.01.

b) DEQ – Water Permitting Programs

DEQ- Virginia Water Protection Permit (VWPP) Program

The Virginia Water Protection (VWP) Permit Program authorizes surface water withdrawal activities¹ and activities in wetlands and surface waters that may or may not require a Clean Water Act Section 401 Water Quality certification. In addition to the permit processing and wetlands impact data for the Tidewater region of the Commonwealth, this narrative highlights any challenges encountered during the reporting period.

During the reporting period of October 1, 2020 to March 31, 2021, the VWP Permit Program issued six individual permits and 59 general permit coverages; processed 37 Notices of Planned Change on general permit coverages; and 17 individual permit modifications. For the purposes of this report, no permit application denials, withdrawals, or waivers were included.

The average time to process a general permit coverage was 18 days, and the average time to process an individual permit was 128 days.

Approximately 62 acres of non-tidal wetland impacts and no tidal impacts occurred during the reporting period. During this reporting period, approximately 111 wetland credits were purchased at compensatory mitigation banks or through in-lieu fee programs.

During the reporting period, 17 compliance actions² on individual permits and 100 compliance actions on general permit coverages were taken. Compliance actions for nine of the individual permits and 22 of the general permit coverages are still active. Additionally, ten compliance actions were taken on activities not associated with a VWP individual permit or general permit coverage, and three of these are still active. During this period, 450 compliance inspections took place.

The VWP Permit Program did not receive comments or concerns about expediting decision-making for the management of coastal resources, nor did the program make changes to procedures associated with expediting decision-making for the management of coastal resources. DEQ as an agency is exploring environmental justice as it relates to management of natural resources in all areas of Virginia. In addition, several federal rules were finalized, such as the Navigable Water Protection Rule, the Clean Water Act Section 401 Certification Rule, and the USACE Reissuance and Modification of Nationwide Permits Rule that have affected the processes discussed herein on a statewide basis.

¹ While VWP permits may authorize surface water withdrawal activities, data specific to streams, stream flow, or water quantity are not included in this program summary.

² Warning Letter (WL) or Notice of Violation (NOV), or Request for Corrective Action (RCA).

DEQ – Virginia Pollution Abatement (VPA) Water Permitting Program

The Virginia Pollution Abatement permit (VPA) is required for facilities that manage wastewater, animal waste, biosolids or industrial sludges in such a manner that they do not have a discharge from the site. For example, an agricultural facility that temporarily stores wastewater to be land applied as part of an irrigation/fertilization program.

During the period between October 1, 2020 and March 31, 2021, six permit application were received. Five applications were for reissuance of VPA Individual Permits (IP), one reissuance was for a permit that authorizes the land application of biosolids within the Coastal Zone; they are all pending issuance. One of the applications was for the minor modification of a VPA IP that authorizes the land application of biosolids; the modification was completed during the reporting period. Two additional permit actions were completed, and the permits signed during this period – both were reissuances of permits that authorize the land application of biosolids. The permit applications for each of the permit actions were submitted prior to this reporting period.

During the period between October 1, 2020 and March 31, 2021, no applications were received for farms located in the Coastal Zone Management area seeking coverage under the VPA General Permit for Poultry Waste Management (PWM) or Animal Feeding Operations. One request for PWM permit ownership change was received and completed during the period.

DEQ – Virginia Pollution Discharge Elimination System (VPDES) Water Permitting Program

There are a total of 293 individual municipal and industrial CZM area VPDES individual permits. This includes 12 Municipal Separate Storm Sewer (MS4) individual permits. This number and the numbers in the table represent typical activity in the program.

There are also numerous facilities registered under general permits in CZM areas including 59 vehicle wash, 104 concrete products, 10 cooling water, 315 domestic sewage $\leq 1,000$ GPD, 58 nonmetallic mineral mining, 25 petroleum, 14 potable water treatment, 46 seafood processors, and 519 industrial stormwater. These represent typical numbers for permit registrants in CZM areas in Virginia. There are also 63 registrants under the MS4 general permit. There are a number of general permit coverages that are automatically covered under a permit (e.g., pesticide applications and hydrostatic testing) and are not entered into the CEDS data base. There are also 61 registrants under the nutrient trading general permit but these facilities are included in the individual permit count.

VPDES/VPA - October 1, 2017 – March 31, 2018*										
	Permits Issued / Avg Proc. Days ⁽¹⁾		Permits Reissued / Avg Proc. Days		Permits Modified** / Avg Proc. Days		Denied / Avg Proc. Days		Permits Reissue Pending / Avg Proc. Days	
VPDES	1	239	23	374	1	80	0	NA	27***	NA
VPA	0	NA	2	603	1	16	0	NA	5	126
VPA GP	0	NA	NA	NA	1	0	0	NA	NA	NA

Processing day is the amount of time between receiving a complete application and making the final case decision (issuance, reissuance, modification, etc.).

* Information from CEDS (Comprehensive Environmental Data System) database

** Major modifications

***This represents existing VPDES individual permits expired but pending through March 31, 2021.

c) DEQ – Water Program Enforcement and Compliance

DEQ continues to apply both informal and formal enforcement measures in the enforcement program. Reference Table 1, below.

Informal measures, such as Warning Letters and Letters of Agreement, are used in those cases where non-compliance is not significant in nature and where compliance can be achieved in a short period of time. For the period October 1, 2020 through March 31, 2021, DEQ issued 216 Warning Letters and 0 Letters of Agreement for violations of VPDES, VPA, VWPP, and Ground Water program requirements.

Formal enforcement actions are used in those cases where non-compliance is more serious or may take a significant amount of time to correct. Formal measures generally involve the issuance of a Notice of Violation followed by a Consent Order, or an Executive Compliance Agreement in the case of a state agency. In some cases, Unilateral Administrative Orders or court orders may be sought. Between October 1, 2020 and March 31, 2021, DEQ issued 49 Notices of Violation for violations of VPDES, VPA, VWPP, and Ground Water program requirements. During the same period, the agency concluded enforcement cases with the issuance of 13 Consent Orders that assessed a total of \$135,987.00 in civil charges.

Table 1

Measure	Action Type	Count	Total Civil Charges Assessed
Informal	Warning Letters	216	N/A
Informal	Letters of Agreement	0	N/A
Formal	Notices of Violation	49	N/A
Formal	Consent Order	13	\$135,987.00
Total		278	\$135,987.00

d) DEQ – Air Permitting Program

OFFICE OF AIR PERMIT PROGRAMS PERMITS ISSUED REPORT FOR VIRGINIA'S COASTAL RESOURCES MANAGEMENT PROGRAM

Period: October 1, 2020 – March 31, 2021

PERMIT TYPE	NUMBER OF PERMITS ISSUED	AVERAGE PROCESSING TIME (Days)
PSD & NA	1	153
Major	0	NA
Minor	80	31
Administrative Amendment	8	94
Exemptions	8	30
State Operating	12	40
Federal Operating (Title V) Initial Issuance	0	NA
Federal Operating (Title V) Renewal	2	1,983
Acid Rain (Title IV)	1	225
Total Number Permits Issued	<u>112</u>	

* The average processing time is determined by computing the difference between when the application was deemed administratively complete and when the permit was issued.

** Due to a reevaluation of applicability of the Non-Metallic Mineral Processing General Permits, several general permits were reissued as minor New Source Review permits. This is a one-time event.

Note: The information provided for this report includes data from the Northern Virginia Regional Office, Portions of the Piedmont Regional Office and the Tidewater Regional Office only.

Definitions:

Prevention of Significant Deterioration (PSD) = A source which emits **250 tons or more** per year of any regulated pollutant or is one of 28 specific industries listed in the state regulations and will emit 100 tons per year of a regulated pollutant.

Major = A source which emits, or has the potential to emit, **100 tons or more** per year of any air pollutant.

Minor = A source which emits, or has the potential to emit, **less than 100 tons** per year of any air pollutant.

State Operating= Permit written pursuant to 9 VAC 5-80-800 et al.

Administrative Consent Agreement = An agreement that the owner or any other person will perform specific actions to diminish or abate the causes of air pollution for the purpose of coming into compliance with regulations, by mutual agreement of the owner or any other person and the Board.

Administrative Amendment = Administrative changes made to the permit to clarify or correct an issued permit. For example, typographical errors, name changes, etc.

Exemption = Facilities are exempted from permitting requirements by exemption levels defined in 9 VAC 5-80-1105.

Federal Operating (Title V) = a source that emits **10 tons or more** per year of any hazardous air pollutant, **or 25 tons** per year of any combination of hazardous air pollutants or emits any criteria pollutant above 100 tons per year.

Acid Rain (Title IV) = Permits issued specifically to address SO₂ and NO_x from electric generating units covered under the Acid Rain regulations.

**OFFICE OF AIR PERMIT PROGRAMS
PERMITS PENDING REPORT FOR
VIRGINIA'S COASTAL RESOURCES MANAGEMENT PROGRAM**

Permits pending as of March 31, 2021

PERMIT TYPE	NUMBER OF PERMITS PENDING
PSD & NA	1
Major	1
Minor	48
Administrative Amendment	2
Exemptions	5
State Operating	8
Federal Operating (Title V) Initial Issuance	9
Federal Operating (Title V) Renewal	77
Acid Rain (Title IV)	10
Total Permits Pending	<u>161</u>

Note: The information provided for this report includes data from the Northern Virginia Regional Office, Piedmont Regional Office and Tidewater Regional Office only.

OFFICE OF AIR PERMIT PROGRAMS
PERMITS WITHDRAWN AND APPLICATIONS DENIED REPORT FOR
VIRGINIA'S COASTAL RESOURCES MANAGEMENT PROGRAM

Period: October 1, 2020 – March 31, 2021

PERMIT TYPE	NUMBER OF PERMITS WITHDRAWN	NUMBER OF APPLICATIONS DENIED
PSD	0	0
Major	0	0
Minor	4	0
Administrative Amendment	0	0
Exemptions	1	0
State Operating	7	0
Federal Operating (Title V)	0	0
Acid Rain (Title IV)	0	0
Total Permits Rescinded	<u>12</u>	<u>0</u>

Note: The information provided for this report includes data from the Northern Virginia Regional Office, Piedmont Regional Office and Tidewater Regional Office only.

e) DEQ – Air Program Enforcement and Compliance

DEQ continues to apply both informal and formal enforcement measures in its air enforcement program. Reference Table 1, on the following page.

Informal measures include Requests for Corrective Action, Informal Correction Letters, Warning Letters, and Letters of Agreement. These actions are used in those cases where non-compliance is not significant in nature and where compliance can be achieved in a short period of time. During the six-month period beginning October 1, 2020 through March 31, 2021, DEQ issued 31 Requests for Corrective Action, and 34 Warning Letters.

Formal enforcement actions are used in those cases where non-compliance is more serious or may take a significant amount of time to correct. Formal measures generally involve the issuance of a Notice of Violation and negotiation of a Consent Order, or an Executive Compliance Agreement in the case of a state agency. In some cases, Unilateral Orders or court orders may be pursued. Between October 1, 2020 and March 31, 2021, DEQ initiated 16 new formal enforcement actions via issuance of Notices of Violation. Additionally, the Agency issued 4 Consent Orders; assessing \$24,829.20 in civil charges.

Table 1

Measure	Action Type	Count	Total Civil Charges Assessed
Informal	Requests for Corrective Action	31	N/A
Informal	Warning Letters	34	N/A
Formal	Notices of Violation	16	N/A
Formal	Consent Orders	4	\$24,829.20
Total		85	\$24,829.20

f) DEQ – Erosion and Sediment Control

Summary of Specific Outputs:

Specific Outputs	Progress / Status
11 CZM Chesapeake Bay Land Disturbing Activities Permitted - Projects less than 1 acre found within Chesapeake Bay Designated Areas.	Permit coverage has been issued and projects are under construction. Compliance is achieved through ongoing permit review, technical assistance, and project inspection.
216 CZM Small Construction Activities Permitted- Land Disturbing Activities greater than or equal to 1 acre and less than 5 acres.	Permit coverage has been issued and projects are under construction. Compliance is achieved through ongoing permit review, technical assistance, and project inspection.
77 CZM Large Construction Activities Permitted- Land Disturbing Activities greater than or equal to 5 acres and less than 10 acres.	Permit coverage has been issued and projects are under construction. Compliance is achieved through ongoing permit review, technical assistance, and project inspection.
85 CZM Large Construction Activities Permitted- Land Disturbing Activities greater than or equal to 10 acres and less than 50 acres.	Permit coverage has been issued and projects are under construction. Compliance is achieved thru ongoing permit review, technical assistance, and project inspection.
6 CZM Large Construction Activities Permitted- Land Disturbing Activities greater than or equal to 50 acres and less than 100 acres.	Permit coverage has been issued and projects are under construction. Compliance is achieved thru ongoing permit review, technical assistance, and project inspection.
5 CZM Large Construction Activities Permitted- Land Disturbing Activities greater than or equal to 100 acres.	Permit coverage has been issued and projects are under construction. Compliance is achieved thru ongoing permit review, technical assistance, and project inspection.
400 Total CZM Land Disturbing Activities Permitted thru coverage under the Construction General Permit.	Coastal Zone Management resources are conserved and restored through permit compliance.

Supplemental Narrative:

Considerable erosion and sediment control and stormwater management progress occurred during the performance period. New and improved requirements for project stabilization during construction and recently enhanced post construction requirements will result in further improvements to coastal zone resources. The new post construction requirements have been developed to more closely mimic predevelopment hydrology found in a naturally wooded site condition. The implementation of these new requirements will result in less downstream sediment export and fewer nutrient export impacts from land development.

g) DEQ- Office of Stormwater Management – Local Government Assistance Programs- Chesapeake Bay Preservation Act

Summary

Program Description

The Chesapeake Bay Preservation Act program is designed to improve water quality in the Chesapeake Bay and other waters of the State by requiring the use of effective land management and land use planning. Specifically, these requirements fall into three implementation phases. Phase I consists of local governments designating and mapping Chesapeake Bay Preservation Areas (CBPAs) and adopting land use and development performance criteria to protect those features. CBPAs include Resource Protections Areas (RPAs) and Resource Management Areas (RMAs). RPAs are made up of tidal wetlands, tidal shores, nontidal wetlands connected and contiguous to tidal wetlands or perennial streams and a 100-foot fully vegetated buffer. RMAs include lands adjacent to RPAs that are made up of land features such as highly erodible soils, steep slopes, and floodplains. Sixty of the 84 Tidewater localities have identified their entire jurisdiction as RMA. Phase II consists of the incorporation of water quality protection measures into local comprehensive plans. Phase III involves the review and revision of local land use codes to include specific standards that implement water quality performance criteria.

Technical Assistance & Training

During the reporting period October 1, 2020 – March 31, 2021 staff continued to provide technical assistance and training to Bay Act localities. For this period, 2 formal training and outreach events were conducted, and 90 instances of technical assistance, including site plan review, were documented.

Environmental Impact Reviews

Through the Environmental Impact Review process, staff continued to review plans for State and Federal projects to ensure those projects were consistent with the Chesapeake Bay Preservation Act. During the reporting period, 44 environmental impact reviews were conducted.

Compliance Reviews

During the reporting period, 1 new Compliance Reviews were initiated, 12 has been completed, and several Condition Reviews are ongoing. Since the Compliance Review process was reinitiated in 2015 (after having been suspended for a period of three years to allow LGAP staff to work on local stormwater program development, and then again for one year for LGAP staff to work on the Phase III WIP), 83 reviews have been initiated or completed and 44 localities have been found compliant. During these reviews, staff assess how well local governments are ensuring that impervious cover and land disturbance are minimized, and indigenous vegetation is preserved on approved development projects and if other Chesapeake Bay Preservation Act general performance criteria are being applied to the use and development of land.

2) VIRGINIA MARINE RESOURCES COMMISSION (VMRC)

a) VMRC – Habitat Management Division

During the period October 1, 2020 through March 31, 2021 the Habitat Management Division received 1,276 applications for projects involving State-owned submerged lands, wetlands or dunes. These applications were for projects such as piers, boathouses, boat ramps, marinas, dredging and shoreline stabilization. As the clearinghouse for the Joint Permit Application all applications were assigned a processing number by the Division and forwarded to the appropriate agencies, including, local wetlands boards, the Norfolk District of the U.S. Army Corps of Engineers, the Department of Environmental Quality, VIMS and others as necessary.

A public interest review was initiated and site inspections were conducted for those projects requiring a permit from the Marine Resources Commission. Likewise, Habitat Management staff also conducted site inspections for all projects requiring a local wetlands board permit and evaluated each local board decision for Commissioner review. Habitat Management staff also conducted compliance inspections on permits issued by VMRC and local wetlands boards.

The Habitat Management Staff completed actions on 1,057 applications received during the period. Action on most applications was completed within 90 days after they were received. As such, a number of the actions taken during the period were for applications received prior to October 2020. Similarly, those applications received near the end of the current reporting period are still under review. Habitat Management Staff also participated in the inter-agency review process involving general permits for Virginia Department of Transportation projects.

In addition to staff actions, the full Commission considered 30 projects. During the reporting period the Commission considered 17 protested projects or projects requiring a staff briefing, The Commission also approved 13 projects over \$500,000.00 in value.

During the reporting period local wetland boards throughout Tidewater Virginia acted on 151 projects involving tidal wetlands. Of this total, 125 were approved as proposed, 19 were approved as modified, 3 were denied, 3 no permit necessary decisions were reached, and 23 required compensation either on or off site (7), or through payment of an in lieu fee (16) accounting for 5,128 square feet of tidal wetland impacts.

b) VMRC – Fisheries Management Division

At the December 2020 meeting, the agency established a new recreational season and vessel limit to comply with required reductions per Amendment 1 of the Interstate Fisheries Management Plan for Atlantic Migratory Group Cobia, as well as established a prohibition on the gaffing of cobia. In addition, the agency established the 2021 Total Allowable Catch per Amendment 3 to the Interstate Fishery Management Plan for Atlantic Menhaden and the Ecological Reference Point Benchmark Assessment and established all associated fishery sector allocations in response.

At the January 2021 meeting, the agency modified the reporting requirements for the February recreational season clarified the size of the degradable panel required on commercial fish pots. At the same meeting, the agency modified the landing dates, possession limits and landing limits for summer flounder commercially harvested offshore (federal waters) and landed in Virginia.

At the February 2021 meeting, the agency established amendments to the legal mesh size in the Chesapeake Bay Restricted Areas from six to seven-inch mesh to five to seven inch mesh. In addition, the agency established five to seven-inch mesh throughout the entire spring period from January 1 through March 25.

At the March 2021 meeting, the agency established a commercial season, a 50-fish recreational bag limit, and an additional live bait allowance for charter/for-hire captains for both Atlantic croaker and spot.

c) VMRC – Law Enforcement Division

Enforcement under "Other Agency" refers to summons issued for other agencies' laws, code or regulation sections. The majority of the summons in this category are for DGIF regulations on boating safety laws, expired boat registration, no life jackets, flares, etc.

Summons under "Police Powers" are all criminal vs fisheries. These are the reckless driving, drunk driving, driving without a license/suspended license, shoplifting, possession of controlled substances.

VIRGINIA MARINE POLICE ARRESTS/CONVICTIONS SUMMARY BY CATEGORY

REPORT FORMAT: FEDERAL FISCAL YEAR AREA: ALL AREAS
START PERIOD: 10/01/2016
END PERIOD: 09/30/2021



Category	2016/2017		2017/2018		2018/2019		2019/2020		2020/2021	
	Convictions	Arrests	Convictions	Arrests	Convictions	Arrests	Convictions	Arrests	Convictions	Arrests
Buyers	1	4	1	1	0	3	0	0	0	0
Casting Garbage/Trash	2	2	0	0	0	0	0	0	0	0
Clams	1	1	1	1	0	0	0	0	0	0
Commercial Fishing License	13	16	12	15	7	39	4	6	0	1
Conchs	0	0	0	2	3	6	2	3	0	0
Crabs	68	89	26	34	64	75	31	41	2	2
Federal Violation	0	0	0	0	0	0	0	0	0	0
FIP Violations	41	42	36	37	32	34	2	3	5	5
Fish	193	216	130	147	319	353	212	229	56	56
Freshwater Fishing without a license	19	20	9	10	23	25	1	2	0	0
Gill Nets	20	34	2	5	3	5	16	16	0	0
Habitat/Wetlands	0	0	0	0	0	0	0	0	0	0
License Tags	0	2	0	0	0	0	0	0	0	1
Mandatory Reporting	2	11	0	0	18	40	5	11	0	0
Misc	0	0	0	0	0	0	1	1	0	0
Non-residents	1	1	0	0	0	0	0	0	0	0
NSSP	0	0	0	0	0	0	1	1	0	0
Other Agencies	365	441	481	604	503	648	212	246	20	21
Oysters	75	100	78	105	81	162	35	49	1	3
Piers	0	0	0	0	0	1	3	3	0	0
Police Powers	87	103	0	0	0	0	0	0	0	0
Removal of Obstructions	1	12	0	0	2	2	1	1	0	0
Resisting officer	1	1	0	0	0	0	0	0	0	0
Shellfish	10	16	0	0	2	7	0	1	0	0
SW Recreational Licenses	191	200	132	141	151	171	66	79	10	10
TOTALS:	1091	1311	908	1102	1208	1571	592	692	94	99
PERCENT OF CONVICTIONS:	83.22%		82.40%		76.89%		85.55%		94.95%	

3) VIRGINIA DEPARTMENT OF HEALTH (VDH) – DIVISION OF SHORELINE SANITATION

There is an anomaly this period when we closed, for a short period of time, the lower James River. You will also note a high total when most of those same waters were later reopened.

From October 1, 2020 through March 31, 2021, the VDH Division of Shellfish Safety and Waterborne Hazards had...

19,819 acres of shellfish grounds formerly open year-round now closed to harvesting year-round,
15,798 acres of shellfish grounds formerly closed year-round now open to harvesting year-round,
285 acres of shellfish grounds formerly open year-round now seasonally closed,
342 acres of shellfish grounds formerly closed year-round now seasonally opened,
693 acres of shellfish grounds formerly seasonally closed now closed year-round, and
771 acres of shellfish grounds formerly seasonally opened now opened year-round.

Activities of the Virginia Department of Health for the Virginia Coastal Resources Management Report are summarized below. This includes statics on applications for sanitary facilities at marinas and other places where boats are moored.

The Department received and reviewed a total of Nine (9) VMRC Permit Applications, and processed as follows:

Eight (8) applications were approved based on meeting the requirements of providing adequate facilities of the Marina Regulations if applicable.

One (1) application was denied because of not meeting regulation requirements.

4) Department of Conservation and Recreation (DCR)

a) DCR - Division of Soil and Water Conservation

Nutrient Management

DCR Nutrient Management Staff have been active in developing and reviewing nutrient management plans as well as other nutrient reduction activities to achieve the Commonwealth's nutrient reduction commitments of the Chesapeake Bay TMDLs. In the coastal zones of Virginia, DCR staff have overseen the development of nutrient management plans covering 14,112.64 acres during the reporting period (10/1/2020 – 3/31/2021). Many plans are active for up to three years, all new or revised acreage developed by DCR planners in the coastal zones during the reporting period are summarized in the following table:

Table 1: Planned nutrient management acreage by land use and costal management zones. Plans started between 10/1/2020 – 3/31/2021.

CZM Basin	Number Of Plans	CZM Crop Acres	CZM Hay Acres	CZM Pasture Acres	CZM Specialty Acres	Total
Albemarle Sound	1	143.43	4.00	-	-	147.43
Atlantic Ocean	5	255.25	-	-	-	255.25
Chesapeake Bay Coastal	12	2,160.36	9.57	-	-	2,169.93
Chowan	4	361.40	21.12	-	7.25	389.76
James	7	1,139.35	13.10	-	-	1,152.45
Potomac	1	796.86	-	-	-	796.86
Rappahannock	17	3,602.50	175.34	112.91	-	3,890.75
York	14	4,889.18	334.80	78.86	7.36	5,310.20
Total:	61	13,348.33	557.93	191.77	14.61	14,112.64

Shoreline Erosion Advisory Service

DCR's Shoreline Erosion Advisory Service (SEAS) was created in 1980 by the Virginia General Assembly as a resource for shoreline landowners and communities. The program provides free, unbiased technical assistance to private landowners and local, state, and federal agencies owning property that are experiencing shoreline or streambank erosion in Virginia. Services SEAS provides include site investigations, written advisory reports, design and plan reviews, construction inspections, permitting assistance, guidance on available financial incentive programs, and education. Since its inception, SEAS has evaluated hundreds of miles of shoreline and provided invaluable technical assistance to thousands of Virginia property owners experiencing shoreline erosion.

For this reporting period, SEAS staff conducted 87 site visits, wrote 92 advisory reports, evaluated 48,370 feet of shoreline, and reviewed and provided comments to VMRC on 13 joint permit applications. SEAS provides advisory assistance to tidal shorelines and non-tidal streambanks in Virginia. During a site visit, staff walks the shoreline with the owner and assesses the cause or causes of the erosion problem. The staff then review with the owner, what they believe are the most appropriate shoreline erosion control and protection strategies for that site. The options range from planting vegetation, to bank grading, to large rock structures such as riprap revetments and breakwaters.

DCR-SEAS is working with the Virginia Institute of Marine Science (VIMS), Virginia Marine Resources Commission (VMRC), and DEQ to 1) identify shoreline management practices (e.g., living shorelines) across tidal Virginia that qualify for Chesapeake Bay TMDL WIP pollutant reduction credits, 2) verify these practices are installed and meet specifications set out by EPA's Chesapeake Bay Program, and 3) quantify and report the earned pollutant reduction credits as part of the Commonwealth's efforts to meet WIP goals. The first round of these pollutant reduction credits was reported to DEQ in October 2017; subsequent rounds were reported in November 2018 and November 2019. During this reporting period, an additional 57 sites have been verified and the associated pollutant reductions were reported to DEQ in November 2020 (see table below); number of sites verified was negatively impacted by limited field time due to COVID-19 pandemic restrictions.

	Submitted November 2020	Total Submitted 2017-2020
Protected Shoreline (ft)	12,895	243,602
Number of Sites	57	1,199
Pollutant – TN [Total Reduction (lbs./yr.)]	1,531.3	31,360.8
Pollutant – TP [Total Reduction (lbs./yr.)]	1,060.7	21,829.8
Pollutant – TSS [Total Reduction (tons/yr.)]	871.5	17,936.6

b) DCR - Division of Natural Heritage

This report lists projects and activities conducted by the Department of Conservation and Recreation, Division of Natural Heritage (DCR-NH) during this period that were not funded by or otherwise reported to the VCZMP

Inventory

On October 13, 2020, DCR's Natural Heritage Program (NHP) Inventory staff and members of the Information Management staff gathered – socially distanced, with facial coverings - at Pocahontas State Park to review the guidelines and processes for assigning an 'EO Rank' to observations of tracked species and significant communities (aka 'Element Occurrence', or EO). An EO Rank is a classification rank (A, B, C, etc) that relays the EO's condition and viability at the time of the observation. These ranks play an important role in helping to determine additional conservation or protection actions, whether by NHP, or by state and national partners. It is therefore critical that ranking is assigned in as unified a manner as possible across staff and time. This meeting fostered great discussions about the thought process and interpretations of the methods in assigning ranks. A comprehensive review of all EO ranks is not possible under current staffing and funding, but was noted as critical to our mission to protect biodiversity in Virginia.

In October 2020, DCR-Natural Heritage Program (NHP) field botanist Jennifer Stanley, along with others from NHP, The Nature Conservancy, and Chincoteague National Wildlife Refuge, completed survey work for the federally threatened Sea-beach Amaranth (*Amaranthus pumilus*; G2/S1, LT/LT). This small annual plant occurs sporadically on the upper beaches and overwash flats of barrier islands from South Carolina to New York. While natural populations of this species have not been found in Virginia recently, its seeds appear to persist in the seedbank for many years. Under favorable conditions, storms and extreme tides can cause this plant to show up on just about any barrier island during the summer months. Though no Sea-beach Amaranth was found, a new location for Sea-beach Knotweed (*Polygonum glaucum*; G3/S2) was discovered and will be added to the Biotics database. Approximately half of the barrier islands in Virginia were surveyed this year under a Section 6 grant from the U.S. Fish and Wildlife Service and the Virginia Department of Agriculture and Consumer services, and surveys will continue next year pending funding approval.

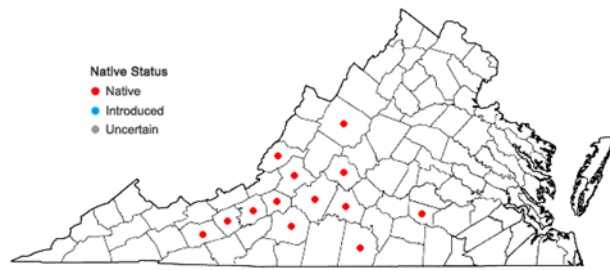
In mid-October 2020, a landowner in Suffolk contacted DCR Natural Heritage staff with photographs of a group of three purple-flowered, tiny plants growing in an adjacent transmission line corridor. The plants were Violet Burmannia (*Burmannia biflora*), an enigmatic herbaceous associate of longleaf pine that has only been observed in Virginia a handful of times in the last three centuries. In the mid-1700s, Violet Burmannia was

described as new to science by Swedish Taxonomist Carl Linnaeus based on specimens sent to him by prominent Virginia botanist John Clayton. The exact provenance of these plants within Virginia is unknown as Clayton did not provide any additional location information. Similarly, in 1815, British botanist and zoologist Thomas Nuttall recorded the species from simply “Virginia.” Over a century later, Harvard botanist Merritt Fernald spent more than a decade documenting the plant life of southeastern Virginia. In 1938 and 1939, Fernald found Violet Burmannia in boggy pine flatwoods in Greensville, Southampton and Nansemond (now City of Suffolk) counties. Fernald described the Greensville County population, in a now-lost sphagnum bog, as a “porcelain blue film of half-an-acre.” The transmission line in which the recently discovered Violet Burmannia population was found was cut nearly a century ago through a wet Longleaf Pine Flatwood community - a type now completely lost from Virginia. While the longleaf pines are now gone, the corridor is still home to some of Virginia’s last remaining occurrences of fire-adapted herbaceous plants that once lived in Virginia’s wet longleaf pine flatwoods. Many of Virginia’s rarest plants are adapted to the open sunny conditions created by natural fire. Some of these now exist solely in transmission line corridors. Such plants face a tenuous existence: transmission line corridors provide the sunny habitat they require but the corridor maintenance, if ill-timed (in the case of mowing) or overly broad (in the case of herbicide application), can result in the loss of these populations in an instant. Such a remarkable rediscovery, after over 80 years, underscores that importance of collaboration with citizen scientists, and reminds us that important botanical discoveries are still occurring in southeast Virginia despite four centuries of intensive land alterations following European contact.



Newly rediscovered Violet Burmannia from a transmission line corridor in Suffolk. This photograph represents the entirety of the known population in Virginia

On November 21, 2020, Staff Botanist John Townsend and Ecologist Gary Fleming led the annual meeting of Virginia Botanical Associates (VBA), a committee that has mapped the distribution of plants in Virginia for decades. The group is composed of members from several universities, state agencies, and the private sector. The field and museum research carried out by VBA produces county-level maps for every species known in Virginia, both native and introduced, and is served to the public as the Digital Atlas of the Virginia Flora (vaplantatlas.org). Among other uses, the Atlas served as the basis for building the Flora of Virginia and revising its content with continually updated information on the taxonomy and distribution of Virginia’s plants.



Digital Atlas map for Smooth Coneflower (*Echinacea laevigata*)

In December 2020, The Flora of Virginia (FOV) underwent “significant additions and updates” (Weakley et al. 2020). The taxonomic standard for vascular plant nomenclature (scientific names) used by the DCR Division of Natural Heritage, with few exceptions, is the Flora of Virginia, a 1500+ page tome co-authored by DNH botanists and published in 2012. A complete summary of those changes can be found [here](#) in a document that can be downloaded from the FOV website. Many of the changes reflect advances in the taxonomic understanding of plants, while other changes are additions to Virginia’s flora, including native and non-native species, as well as two species new to science (Leblond et al. 2020; Townsend and Ludwig 2020). Natural Heritage Ecologists K. Patterson and G. Fleming, Botanist J. Townsend, and Data Manager M. Rollins worked together to ensure crucial DNH databases and data products were updated to conform to the updated standard, a 2021 Division goal. This “taxonomic migration” resulted in substantial changes to nomenclature in the [DNH Rare Plants List](#) (8% of the list), [The Natural Communities of Virginia](#) (10% of the Community names), and the VAPLOTS database (changes to 12,000 species records and over 400 taxa). In the DNH BIOTICS database, Element Tracking and Scientific Name records were updated and information on the DNH website was edited to conform to the updated FOV.

Citations: Weakley, A.S., J.C. Ludwig, J.F. Townsend, and G.P. Fleming. 2020. Flora of Virginia. With significant additions and updates. Bland Crowder, ed. Mobile app. Foundation of the Flora of Virginia Project Inc., Richmond, and High Country Apps, Bozeman, Montana.
 LeBlond, R. J., Townsend, J. F., & Ludwig, J. C. (2020). Two new species of *Dichanthelium* (Poaceae) from the mountains and Piedmont of Virginia, one with an outlier in Pennsylvania. *Journal of the Botanical Research Institute of Texas*, 14(2), 189-198.
 Townsend, J. F., & Ludwig, J. C. (2020). Floristics of Difficult Creek Natural Area Preserve: a Piedmont mafic woodland complex in Halifax County, Virginia, U.S.A. *Journal of the Botanical Research Institute of Texas*, 14(2), 481-519.



Flora of Virginia App

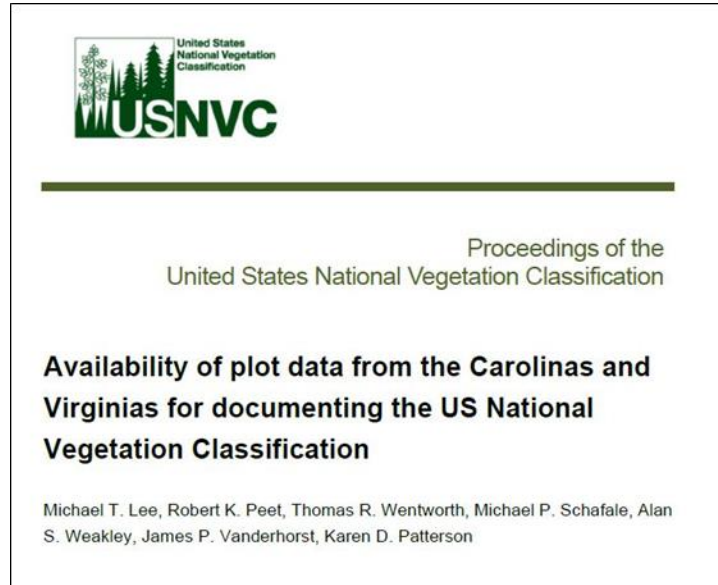
In January 2021, a report summarizing 2020 survey efforts for the Frosted Elfin was submitted to the Virginia Department of Agriculture and Consumer Services to finalize the USFWS-funded Section 6 contract. Surveys to determine the status, distribution, and habitat requirements of the Frosted Elfin have been ongoing for years in Virginia. The species has been declining in numbers throughout much of its range in recent years, and this trend has been seen in Virginia as well. Natural Heritage surveys during the 2020 field season revealed only two locations within South Quay Natural Area Preserve where the species was documented. Numbers within South Quay declined from 2019 surveys when 8-9 individuals were observed. There were major changes to the landscape at the South Quay location where Frosted elfin were seen laying eggs in 2019. During 2020, only 3 individuals were seen at South Quay, and there were no other verified sightings of the species recorded in Virginia to our knowledge. The host plants for the species are *Baptisia tinctoria* and *Lupinus perennis*, both of which are fairly widespread in Virginia. However, efforts by DNH and other partners to revisit historic sites for Frosted elfin, or known populations of the host plants did not reveal any other verified sightings during 2020. Two locations had possible sightings, one at Fort A.P. Hill (single individual), and two possible Frosted elfin were seen at a site in Craig County. DNH zoologists are hoping to continue monitoring this species at known and new sites during the 2021 field season.



Frosted elfin resting near Opuntia at South Quay Natural Area Preserve during 2020 surveys

On February 19, 2021, findings from a collaboration amongst regional ecologists were published in the [Proceedings of the US National Vegetation Classification](#). Division of Natural Heritage Vegetation Ecologist, Karen Patterson, collaborated with Ecologists from NC and WV to examine how well available vegetation plot data from a four-state US region (NC, SC, VA, and WV) meet the U.S. Federal Geographic

Data Committee (FGDC) [requirements](#) to support definitions of vegetation associations in the US National Vegetation Classification ([USNVC](#)). Since 1989, VA DCR Division of Natural Heritage Ecologists have collected data in over 4700 geo-referenced plot samples across the Commonwealth. Each plot has been classified (either through quantitative analysis or inspection) to the [VA DNH Natural Community Classification](#) and to the USNVC. While the primary intended use of these vegetation plot data was to inform the development and refinement of our [list of Natural Community conservation targets](#), the VAPLOTS database has many other applications, both within the Division and in the greater scientific community. While VAPLOTS is not publically accessible, much of the data are served through [VegBank](#), an on-line database sponsored by the Ecological Society of America.



Citation: Lee, Michael T. et al. 2020. Availability of plot data from the Carolinas and Virginias for documenting the US National Vegetation Classification. USNVC Proc-4. Washington, D.C., USA: Ecological Society of America. 15 pp + Appendix

Prescribed Burning

After a long period of unfavorable weather in February and early March 2021, a high-priority 100-acre prescribed burn was completed on March 8, 2021 at South Quay Sandhills Natural Area Preserve (SQSNAP) in Suffolk. This burn was critical for restoring longleaf pine woodland/savanna communities and enhancing habitat for associated rare species. Fire had the effects of reducing competition for young longleaf pines planted in December 2015, plus enhancing habitat for rare species of plants and animals associated with fire-maintained pine savannas. DCR's Eastern Fire Manager Rebecca Wilson orchestrated the effort, coordinating both DCR staff and crew from The Nature Conservancy (TNC), U.S. Fish and Wildlife Service, Department of Wildlife Resources and Department of Forestry. All of these partners provided support essential for the successful completion of this prescribed fire. Notably, the burn marked the first time that aerial ignition has been employed on a DCR natural area preserve – made possible by TNC's willingness to provide their equipment and staff expertise. Another notable aspect was the presence of Secretary of Natural Resources, Matt Strickler and Deputy Secretary Josh Saks, along with DCR Director, Clyde Cristman. Their presence as observers indicated a welcome show of support from the Northam Administration for natural area preserve stewardship and prescribed fire management in the Commonwealth.



Left: Deputy SONR Josh Saks and Rick Myers inspect a young longleaf pine immediately after being released from competition by prescribed fire.. At right: The Nature Conservancy's drone was used on this burn at SQSNAP, marking the first time aerial ignition has been performed on a state natural area preserve.

Natural Area Preserve Stewardship

During November 2020, DCR Natural Heritage Northern Region stewardship staff completed trail maintenance and improvements on the heavily used Accokeek Loop Trail at Crow's Nest Natural Area Preserve. Heavy rains since August have resulted in extremely wet and muddy conditions along lower stretches of the trail. This combined with continued high visitation and large number of trail users has caused severe trail impacts, especially in areas of higher soil moisture. To mitigate this, staff re-located approximately 500-feet of trail upslope to a more sustainable location. In addition, approach walkways were installed at either end of an existing footbridge to help hikers cross wet soil areas.



Approach walkways were installed to help hikers cross wet soils along the Accokeek Loop Trail at Crow's Nest Natural Area Preserve.

On December 19, 2020, DCR's Southeast Region Steward Darren Loomis and Longleaf Restoration Specialist Rebecca Wilson completed efforts to establish 43 additional acres of native Virginia longleaf pine seedlings at South Quay Sandhills Natural Area Preserve, south of Franklin, VA. All seedlings were grown from seed collected at the preserve less than one mile from the planting site. The restoration site supports rare plant and

animal occurrences, native mature longleaf and shortleaf pines, and various scrub oak species. Restoration began in spring 2020 with a loblolly pine removal harvest, followed by a site preparation burn on September 23 observed and reported on by staff from Blue Ridge Outdoors magazine – who published an article in the November edition. Beginning in 2008, DCR’s Natural Heritage Program has now established over 1,500 acres of longleaf pine on lands of the state natural area preserve system, managing them with frequent prescribed fire as part of a long-term effort to restore longleaf pine natural communities and enhance rare species habitat. DCR’s 23,134 seedlings planted in December were purchased by The Nature Conservancy as part of TNC’s Plant a Billion Trees program, a global reforestation effort. Costs for the contracted tree planting were covered by a 2017 National Fish and Wildlife Foundation grant administered by the Virginia Department of Forestry.



DCR Natural Heritage Stewardship staff recently completed a longleaf pine restoration project at South Quay Sandhills Natural Area Preserve. After loblolly pine removal and site preparation burning, a contracted crew planted 23,134 native longleaf seedlings on 43 acres on December 19, 2020.

On January 22, 2021, DCR’s Northern Region Steward, Mike Lott, joined staff from Stafford County and the Northern Virginia Conservation Trust to complete the annual Great Blue Heron nest count within the Potomac Creek Heronry at Crow’s Nest Natural Area Preserve. There were 224 nests counted this year – a slight decrease from the 228 counted in 2020. As in many years, this number is likely an underestimate since strong summer storms often blow some nests from trees. In addition, approximately 10 potential nests were discovered on a steep slope adjacent to the existing heronry within the Potomac Creek floodplain. These will be monitored for nesting activity during the coming breeding season. Utilization by herons of adjacent upland areas could indicate a significant shift in nest locations within the heronry. As in 2020, DCR staff again plan to monitor heron nesting in late March or early April 2021 using an unmanned aerial vehicle (UAV) to refine estimates of the number of herons nesting at Crow’s Nest.



The 2021 Crow’s Nest heronry nest count team (left) and heron nests in an American sycamore (right).

On March 3, 2021 DCR's Eastern Shore Region Stewardship staff initiated restoration of 75 acres of former agricultural fields to migratory songbird stopover habitat at Magothy Bay Natural Area Preserve. Fields on the recently-acquired Spady tract addition to the preserve were planted with 3,600 southern wax myrtle (*Morella cerifera*) shrubs grown in 1-gallon containers for the purpose of enhancing natural forest succession. Wax myrtle is native to the Eastern Shore, produces fruit at a young age, provides perches for resting and cover from predators and attracts insect food sources for birds. It is also deer resistant, drought tolerant and well-adapted to the sandy soils of the Eastern Shore. As birds perch on the shrubs, seeds in their droppings will naturally populate the site with other native shrubs and trees, resulting in the establishment of a diverse forest. Shrubs were planted by volunteers from the Virginia Master Naturalists Eastern Shore Chapter plus DCR Natural Heritage staff from across the state. In late summer and early autumn, millions of neotropical and temperate songbirds migrate down the Delmarva Peninsula to their wintering grounds. These birds utilize forest habitat at the southern tip of Virginia's Eastern Shore to rest and refuel before crossing the wide expanse of the Chesapeake Bay. An increased area of forested habitat at this critical resting point will help ensure migrating birds have adequate food sources to continue their journey.



Above, Natural Heritage staff unload 3,600 wax myrtle shrubs delivered to Magothy Bay Natural Area Preserve on March 2. Below, volunteers from the Virginia Master Naturalists Eastern Shore Chapter plant wax myrtles.

On March 24, 2021, staff from the Wildlife Center of Virginia (WCV) released a rehabilitated adult male Bald Eagle at Mutton Hunk Fen Natural Area Preserve on the Eastern Shore. This eagle had previously been found in Accomack County with a broken wing, was rescued by local wildlife rehabilitators and then transferred to WCV near Waynesboro. Mutton Hunk Fen was selected as the release site in consultation with DCR's Eastern Shore Region Steward, Dot Field. The preserve is located in Accomack County not far from where the eagle had been found. The open, natural habitat of the preserve – situated away from busy roads and human residences – provided an ideal setting for returning this fortunate eagle to the wild.



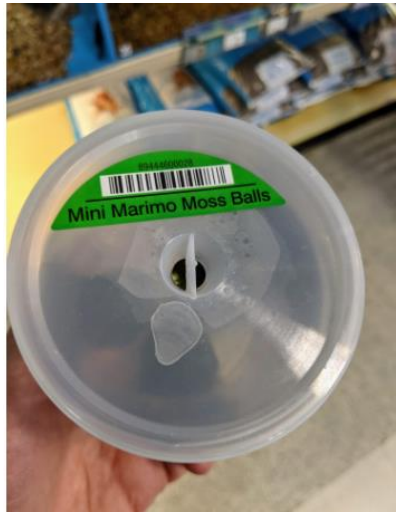
Ed Clark of the Wildlife Center of Virginia prepares to release a rehabilitated Bald Eagle at Mutton Hunk Fen Natural Area Preserve.

Invasive Species

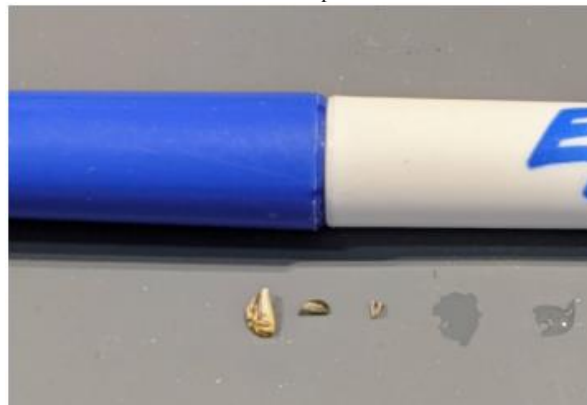
On February 25, 2021, DCR Stewardship Biologist Kevin Heffernan facilitated a video conference focused on managing the red imported fire ant for DCR Natural Heritage inventory and stewardship staff and area land management partners. Red imported fire ants have been and will continue to make their way into Virginia from the south. The species is a highly aggressive invasive that swarms and stings humans and livestock. They also decimate native ant populations. Populations have been identified on several natural area preserves. Dr. David Oi, USDA-Agricultural Research Service entomologist, gave an overview of species biology, monitoring, and management techniques. Site conservation or land use goals drive the selection of appropriate management techniques. Of particular importance to Natural Heritage staff, options are available that minimize harm to non-target species. However, there are no techniques that permanently eradicate red fire ants. Therefore, managing fire ant populations will be an ongoing issue. The eighteen participants included staff from The Nature Conservancy, the Departments of Conservation and Recreation, Forestry, Wildlife Resources, and Agriculture and Consumer Services.

On March 3, 2021, DCR Stewardship Biologist received an email from the US Fish and Wildlife Aquatic Nuisance Species Task Force alerting states that a PetCo store employee had discovered live zebra mussels, a highly invasive species, in a popular aquarium product commonly known as “moss balls.” By Friday, March 5, Stewardship Biologist found suspected zebra mussel specimens in a Richmond, Virginia pet store. As of Monday, March 8, 31 other states had reported finding zebra mussels in moss balls, from Washington to Vermont to Arizona to Georgia. Zebra mussel infestations have caused extensive economic and ecological damage in the US since introduction. In 1988, zebra mussel (*Dreissena polymorpha*) was first discovered in North America in Lake Saint Claire, Michigan, likely accidentally introduced via ship ballast water. Zebra mussel’s native range is in the Black, Caspian, and Azov Seas in Eastern Europe. They form dense colonies and attach to submerged surfaces such as pier pilings, ship hulls, and water intake pipes. Zebra mussels attach to native mussel colonies and smother them. Infrastructure damages are estimated in the billions of dollars. Until this week, zebra mussels have been reported from 32 states. Marimo, or “moss balls,” is a freshwater algae species (*Aegagropila linnaei*) with a spherical growth habit. It is known from Europe and Japan. In the pet trade, marimo is sold as aquarium decoration. On March 4, 2021 as email reports from several other states

indicated that the product infestation was widespread, DCR's Stewardship Biologist contacted staff in the Department of Wildlife Resources and USDA Animal and Plant Inspection Service to inform them of the rapidly developing story. Stewardship Biologist also called a local PetCo store. The manager said they had already been informed of the issue by corporate leadership, who had instructed stores to pull the moss ball product from shelves and await further information. On March 5, 2021 numerous reports had been made regarding a similar situation with PetSmart moss balls. Stewardship Biologist called a local store. The manager had seen information on Facebook, but had not heard from corporate leadership. As they were speaking, the manager looked in a container and found a suspected zebra mussel specimen. Stewardship Biologist asked permission to visit the store and see what was found. Three mussels were found in two product containers, one clearly a zebra mussel. Stewardship Biologist reported the finding to DWR staff, who were also conducting investigations.



Moss Balls product



Mussels found in product with dry erase marker for scale.



Mussels found in Mini Marimo Moss Balls product

Virginia DWR has jurisdiction over Virginia's freshwater streams and rivers and can take regulatory action to protect aquatic habitat from nuisance species like zebra mussel. As of March 8, 2021, USFWS was working with other federal agencies to determine the extent of the situation and possible courses of action. Retailers were reported to be removing moss ball products from their shelves.

On March 11, 2021, DCR Stewardship Biologist Kevin Heffernan participated in the first *Trapa bispinosa* Steering Committee meeting, held remotely due to covid-19. Led by Sara Tangen, coordinator of the Coordinator National Capital Region PRISM (Partnership for Regional Invasive Species Management), representatives from local, state and federal agencies heard about two-horned water chestnut (*Trapa bispinosa*) and a variety of planned and proposed actions to address the spread of this recently recognized invasive aquatic plant. Two-horned water chestnut has been spreading through northern Virginia freshwater lakes, ponds, and streams since at least 2014. At first, the plant was thought to be Eurasian water chestnut, but has since been distinguished as a separate species. Eurasian water chestnut has a notorious reputation as an aggressive invasive of the Potomac River from the 1920s to the 1950s. Huge, dense, floating mats choked navigation and suppressed native submersed aquatic vegetation. Efforts by the Army Corps of Engineers brought about the eradication of Eurasian water chestnut in the Potomac by the 1950s. The biology of the two species is so similar, there is a great concern of another severe infestation if no coordinated state-wide action is taken. Evidence indicates that the two-horned water chestnuts is spread by waterfowl. Two researchers presented findings based on extensive surveys of two-horned water chestnut populations by USGS aquatic plant ecologist Nancy Rybicki. Rybicki has confirmed 62 sites in northern Virginia counties of Fairfax, Prince William, and Fauquier. USGS botanist Ian Pfingsten analyzed GIS data and estimated over 700 lake, pond, and stream habitats within 2 miles of known water chestnut locations. The central focus of the meeting was a DWR proposal authored by Ray Fernald for funding for two DWR positions to begin control efforts at prioritized sites of the water chestnut. Because managing aquatic invasive plants outside of wildlife management areas is not in the formal scope of DWR, the Department is requesting funds from the Secretary of Natural Resources for the positions.

DCR Stewardship Biologist spoke about a DCR project funded by the USFWS Aquatic Nuisance Species Task Force, beginning in the summer of 2021. With this funding, DCR staff will conduct further water chestnut surveys, education and outreach, and participate in control activities. The National Capital Region PRISM reported that a network of volunteers who have been--and will continue to be--engaged in efforts to track and control water chestnut.



Images of water chestnut

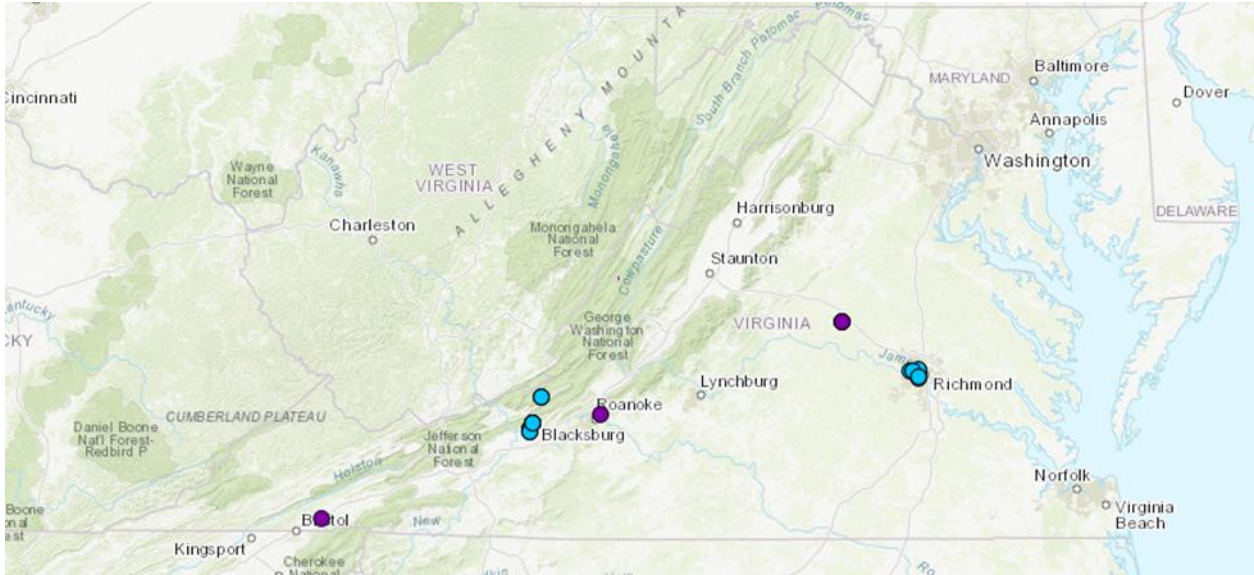
Information Management

During the first week of November 2020, the Natural Heritage Information Manager, Joe Weber, was interviewed by a contributing writer for National Geographic. Jackie Snow, who covers stories about use of technology in natural resource conservation focused the interview on artificial intelligence techniques developed by the Virginia Natural Heritage Program (VNHP), along with partners in the NatureServe network of natural heritage programs, to predict suitable habitats for rare species. The VNHP helped develop a machine learning approach that has been used to predict suitable habitats for all state or federally listed (i.e., threatened or endangered) species, as well as over 20 globally rare species without such protections. Similar techniques were used by a consortium of Virginia and three other natural heritage programs to model species habitats for federal partners from Maine to Florida, and for a project involving the larger natural heritage network, overseen by NatureServe, to develop the Map of Biodiversity Importance (MoBI) for the conterminous United States. The modeling technique was discussed in great detail; final habitat suitability models were presented, as was the Predicted Suitable Habitat Summary (PSHS), a compilation of all current habitat suitability models developed by VNHP. These products are available, with subscription, to assess impacts of proposed development projects, in order inform opportunities to reduce conflicts and better protect natural heritage resources. The individual habitat suitability models aid species inventory by identifying areas of high probability of suitable habitat, helping biologists limit the area that needs to be field-surveyed. This has resulted in several success stories where fieldwork informed 1) new occurrences found where those species were not known to occur previously, and 2) where species absences allowed further refinement of model outputs.

On November 9, 2020, the Natural Heritage Information Manager, Joe Weber, delivered an invited presentation about the Natural Heritage Data Explorer (NHDE) to the Water and Natural Resources Committee of the New Mexico Legislature. The presentation was requested by the Policy Director of New Mexico Audubon to support a bill before the legislature that, if passed into law, would coordinate agencies to enhance existing services or create a new Environmental Review Tool (ERT) with capabilities similar to NHDE. NHDE was the first ERT developed by NatureServe and it has served as a template for development of ERTs for over a dozen other states. The presentation discussed the history of the tool; how it incorporates natural heritage resource and conserved lands data; and how it is used to review over 2,500 development and conservation projects annually, with greater efficiency. NHDE provides 24/7 access to a wealth of data for the general public and access to sensitive data for over 200 subscribers, including localities, consultants, land trusts, and state and federal agencies. The information on NHDE includes Virginia's Conservation Lands Database, conservation planning tools like Governor Northam's ConserveVirginia, habitat suitability models for over 160 rare species, ConservationVision, and known locations of rare species and natural communities. The presentation was received well and the Information Manager was invited to appear again during the general session in 2021.

On March 4, 2021, Virginia DCR Natural Heritage Program Data and GIS Specialist, Danielle Kulas, led a condensed virtual Spatial Methodology Training for Natural Heritage staff. Fifteen trainees attended, representing the Information Management, Stewardship, and Inventory sections. The primary focus of training was Natural Heritage spatial methodology, and best practices for representing observations of Natural Heritage resources in a GIS format. Standards, methods, and tools that are integral to the success of Virginia's Natural Heritage Program were also introduced. The morning session consisted of a presentation, working through examples and group discussions related to spatial methodology concepts, and a smart phone Collector App demonstration. Trainees then gathered data with the Collector App during a self-guided field session. The afternoon portion of training covered accessing the collected data in ArcGIS Online and Pro as well as further discussion and examples. Methodology Training supports the consistent use of Natural Heritage standards and methods, and the training was well received in anticipation of the upcoming 2021 field season. Trainees gained a better understanding of the methodology behind their field work, and how it scales up to a broader Network-wide ability to capture data of a consistent and reliable quality. Despite the challenges of a virtual environment

this year, the training was interactive and attendees were attentive. The sessions were recorded and will be shared with all Natural Heritage Program staff for anyone wishing to brush up on spatial methodology.



Map displaying training data collected during the self-guided Collector App field session, representing a variety of training locations of virtual Spatial Methodology Training attendees.

Outreach and Education

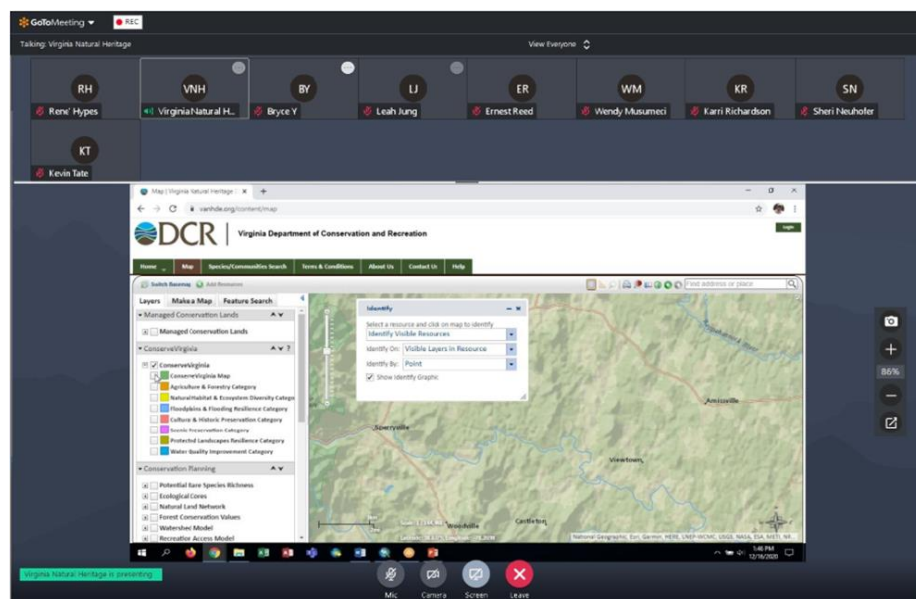
On November 19, 2020, the DCR Natural Heritage Northern Region Steward, Michael Lott, hosted 16 high school juniors and seniors from Fredericksburg Academy for a field trip to Crow's Nest Natural Area Preserve. These students are taking an Environmental Biology course with a current focus on issues affecting bird populations. After an introduction to the preserve and DCR's Natural Heritage Program, the students visited the canoe launch and hiked the Accokeek Overlook Trail. The group discussed the value of large, undisturbed forests like those found at Crow's Nest for forest interior birds. Students also learned about the value of Freshwater Tidal Marsh natural communities at Crow's Nest, including their importance to over-wintering waterfowl. Students used spotting scopes to get close-up looks at Hooded Mergansers as well as Gadwall and Bufflehead ducks. The class instructor is David Steinberger, who also assists with the annual breeding bird survey at Crow's Nest.



Fredericksburg Academy Environmental Biology students recently visited Crow's Nest Natural Area Preserve.

On December 16th, 2020, DCR's Natural Heritage Locality Liaison, Tyler Meader, gave a virtual [Natural Heritage Data Explorer](#) (NHDE) training focusing on the publically accessible layers on the website. NHDE training sessions have traditionally been tailored to members of organizations interested in conducting due

diligence for project development requiring login credentials and an annual subscription. Due to increasing interest in NHDE from many individuals, the public access training was developed with the goal of providing information about the Natural Heritage Program and NHDE including information about Governor Northam's land conservation initiative, *ConserveVirginia*, to a more diverse audience. Many of the layers and functionality on NHDE are publicly available including the managed conservation lands layers, reference layers, conservation planning layers as well as map making and querying functionality without login requirements. In the coming year, DCR plans to develop a training video for the Natural Heritage Data Explorer to guide users in the use and functions of the ArcGIS website application available through open access.



Virtual Natural Heritage Data Explorer Public Training

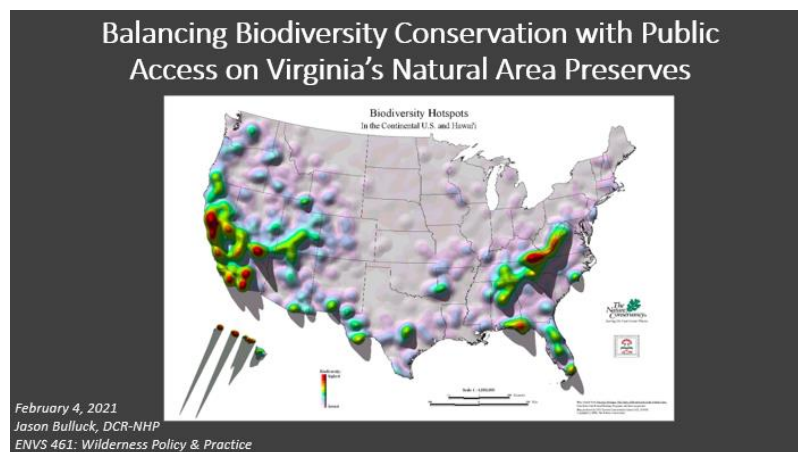
On January 13, 2021, DCR Natural Heritage ecologist Gary Fleming spoke to the Virginia Eastern Shore Conservation Alliance at the group's quarterly meeting (virtual). His presentation, entitled "Habitat Conservation Priorities on the Eastern Shore of Virginia," provided an overview of coastal ecosystems that are well protected on the Eastern Shore, and those that are not. All of the well protected ecosystems are associated with managed areas of various ownership that cover a remarkable 22% of the Eastern Shore, primarily along its maritime and bay-side flanks. Several non-maritime ecosystems, e.g., non-maritime hardwood forests, non-riverine swamps, and tidal freshwater marshes, occur only in the peninsula interior and require additional inventory, acquisition, and management.

The Virginia Eastern Shore Conservation Alliance is a partnership of public agencies and private organizations that is focused on five primary objectives: land protection, habitat improvement, conservation research and monitoring, ecotourism, and outreach/education.



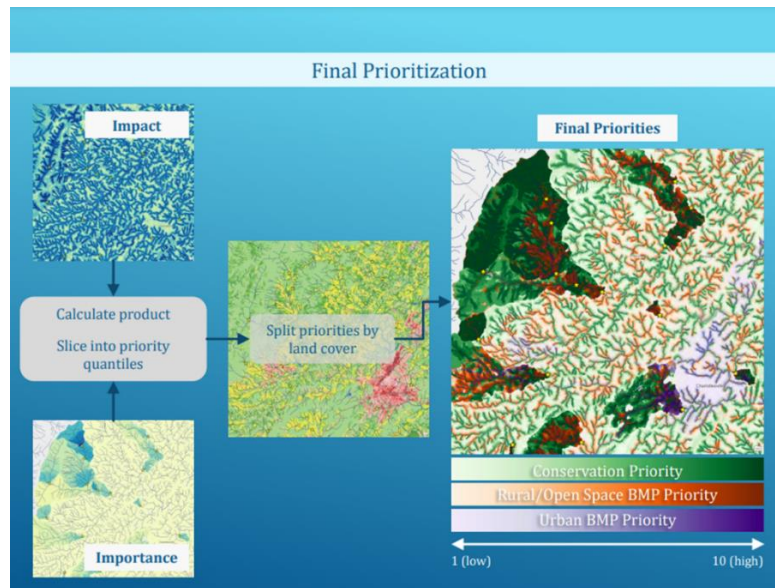
Overwash Flat, Wreck Island State Natural Area Preserve. Photo by Gary P. Fleming.

On February 4, 2021, DCR's Natural Heritage Program Director, Jason Bulluck, gave a virtual presentation to the Wilderness Policy & Practice class, an Environmental Studies Department course taught by Outdoor Adventure Programs staff, at Virginia Commonwealth University. The presentation provided an overview of the Virginia Natural Heritage Program, the Virginia Natural Area Preserves, and the challenges and benefits of balancing biodiversity conservation with public access. Specifically requested by the instructor, Jason also provided a comparison overview of the federal Wilderness Protection Act (1964) with the Virginia Natural Area Preserves Act. Twelve very attentive students attended and participated with great questions and discussion.



Title slide from Jason Bulluck's virtual lecture delivered to VCU's Wilderness Policy & Practice class.

On February 8, 2021, Virginia Natural Heritage staff were on the agenda for an online meeting of the Healthy Watersheds Goal Implementation Team (HW-GIT) of the Chesapeake Bay Program. The HW-GIT's desired outcome is for 100% of state-identified currently healthy waters and watersheds to remain healthy through 2025. Todd Janeski, the Healthy Waters Program Manager, introduced DCR-Natural Heritage's, Landscape Ecologist Kirsten Hazler to present Virginia's approach to achieving that goal. The talk, titled "A prioritization model for maintaining Healthy Waters in Virginia", was followed by a short question and answer session. The presentation was well received, and described as an "innovative" modeling approach by attendees.



Prioritization methods slide presented by Natural Heritage staff at the Healthy Watersheds Goal Implementation Team (HW-GIT) of the Chesapeake Bay Program

On February 12, 2021, DCR's Chesapeake Bay Region Steward Zach Bradford gave a virtual talk about Virginia's native orchids to 15 members of the River Road Garden Club during their monthly meeting. The presentation introduced attendees to Virginia's 62 native orchid species with an emphasis on the 27 species listed as state rare and tracked by DCR's Natural Heritage Program. Threats including habitat destruction, fire suppression, and invasive species were discussed. The presentation closed with a peek at a few orchid species that occur in neighboring states and may be present in Virginia, but have yet to be discovered here.



Florida adder's-mouth (*Malaxis spicata*) is an uncommon southern orchid that reaches its northern range limit on the Middle Peninsula in Virginia.

On March 25, 2021, NatureServe, a non-profit conservation organization of which DCR-Natural Heritage is an award-winning member, kicked off its 'Network Van Tour' (<https://www.natureserve.org/connect/natureserve-network-van-tour>) by visiting Crow's Nest Natural Area Preserve. This national tour of Natural Heritage

Programs is being undertaken by NatureServe's CEO and President, Dr. Sean O'Brien. The tour is a creative effort to raise awareness of the connection of all natural heritage programs and NatureServe in a new way – by telling stories about conservation, technology, science, and biodiversity in each state. In particular, the use of comprehensive and robust conservation data on rare species and natural communities, their rarity status, and the viability, threats to and conservation significance (i.e. need) of each location, is exactly what is needed to drive strategic conservation throughout North, Central and South America. This data-based conservation is unique to Natural Heritage Programs and NatureServe, and unmatched in the conservation sector. Crow's Nest NAP is a perfect example of where Natural Heritage data were used to protect one of the best remaining examples of intact and conservation-significant natural communities. Joining DCR staff and NatureServe for the kick-off event were Deputy Secretary of Natural Resource Josh Saks, Agency Director Clyde Cristman, and DCR Deputy Director of Operations, Tom Smith. Videos, photos, and interviews were collected and NatureServe staff will edit the 'Virginia's story' in coming weeks.



DCR Natural Heritage Ecologist, Gary Fleming, interpreting the bottomland forest natural communities at Crow's Nest Natural Area Preserve.



DCR Director Clyde Cristman; DCR-Natural Heritage Ecologist, Gary Fleming; DCR-Natural Heritage Director, Jason Bulluck and NatureServe CEO, Dr. Sean O'Brien, (left to right) discussing maps of the natural communities of Crow's Nest Natural Area Preserve and NatureServe's Map of Biodiversity Importance, for Virginia.



Governor's Office, DCR and NatureServe staff with NatureServe's "Van Tour" van.



NatureServe CEO, Dr. Sean O'Brien, and DCR-Natural Heritage Program Director, Jason Bulluck, video recording an interview on the Virginia Natural Heritage Program's use of biodiversity data for strategic land conservation and the effects of the pandemic on the conservation work of the Program.

On March 31, 2021, DCR's Eastern Shore Region Steward, Dot Field, gave a presentation to the Cape Charles Rotary Club. The presentation focused on the mission of the Virginia Natural Heritage Program and highlighted the nine state natural area preserves on the Eastern Shore. The presentation was given virtually via the Rotary Club's *Zoom* link.

Land Conservation

Overall, 2020 was one of the most productive, albeit challenging, years in program history. With tremendous support from DCR's Real Property Office, Office of the Attorney General, Department of General Services and other partners, 2020 was only the 6th time since 1990 that DCR has completed ten or more Natural Area Preserve real-estate projects in a single calendar year. These 12 individual transactions resulted in the establishment of two new Natural Area Preserves (Cave Hill and Lyndhurst Ponds) and significant additions to six others (Camp Branch, Pedlar Hills, Cape Charles, Crow's Nest, Poor Mountain and Chestnut Ridge) netting approximately 1,786 acres of permanently dedicated and protected lands across Virginia.

Funds to support these transactions came from two Forest Core grants, two DuPont Natural Resource Damage Assessment and Restoration (NRDAR) grants, four Virginia Land Conservation Foundation (VLCF) grants, two National Oceanic and Atmospheric Administration (NOAA) grants administered by the Department of Environmental Quality/Virginia Coastal Zone Management Program, as well as citizen donations to the Open Space Tax Checkoff fund and direct contributions to the Natural Area Preservation Fund.



Example of intact and possible old growth forest recently protected at the Poor Mountain Natural Area Preserve.

Natural Heritage Data Management Totals for FY2020:

Activity 10-1-20 – 3-31-21

New Mapped Locations (EOs) – 29
Updated Mapped Locations (EOs) - 69
New Conservation Sites – 13
Updated Conservation Sites – 54

Total Number in Database 3-31-21:

Animal Mapped Locations (EOs) – 655
Plant Mapped Locations (EOs) – 1284
Community Mapped Locations – 612
Conservation Sites – 675

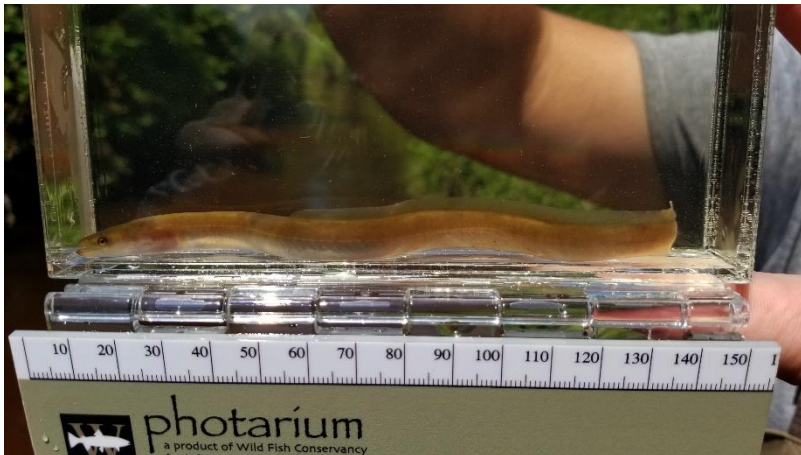
Managed Areas: (Acres added 10-1-20 – 3-31-21) – 8,088.13 Acres
Mapped Tracts: (total number in coastal zone) – 4,940 Tracts
Mapped Managed Areas: (total number in coastal zone) – 3,463 Managed Areas

Healthy Waters

For the grant reporting period, the Environmental Scientist/Analyst with the Virginia Commonwealth University, Rice Rivers Center in the Department of Life Sciences continued to serve as the Program Manager of the Virginia Healthy Waters Program at the Virginia Department of Conservation and Recreation, Division of Natural Heritage.

The Healthy Waters Program is supported through funding from several grant sources including the VA CZM Section 306, US EPA Section 319 Nonpoint Source Program, and the Chesapeake Bay Implementation Grant. These sources fund various aspects of the Program including the administration and oversight, Program growth and expansion, improvement in capacity, acquisition and analysis of new data, tool and model development and data integration at the DCR.

Programmatically, the development of models and tools continued to be the focus of efforts during the reporting period. Additionally, ongoing data integration, geographic expansion, data re-sampling and the continued integration of existing INSTAR data into the DNH data explorer and the creation of new Element Occurrences (EOs) and Stream Conservation Units (SCUs). Despite the diverse funding, the HWP continues to have challenges administering the Program in such areas as development of new data to complete the statewide coverage, and the resource and staffing needs to conduct field assessments. This reporting cycle did not include Heritage staff with the VCU field crew to collect INSTAR data due to funding and COVID-based limitations. VCU field team collected data in coastal sites in Tuckahoe Creek (Henrico County), Polecat Creek (Caroline County), Lower Rappahannock River and in non-tidal James River basin streams. A few photos are included:



American Eel (*Anguilla rostrata*)



Yellow Bullhead (*Ameiurus natalis*)



Alewife (*Alosa pseudoharengus*)

Ongoing discussions evaluating the long-term funding for the HWP had been one of the foci during the reporting period. The allocation and identification of outcomes for each was undertaken with effort shared by DEQ and DCR. Despite the limitations of the COVID-19 pandemic, the NHP and VCU have continued to identify a watershed scale approach to protect ecologically healthy waters. NHP and VCU have continued to identify a watershed scale approach to protect ecologically healthy waters. Those sites have unique characteristics for each watershed that are relative to slope, soils, cover type and proximity to terrestrial heritage resources. Using the NHD+HD catchments and models produced at the NHP, the HWP is advancing the development of conservation planning tools that will ensure HWs are maintained once they have been identified and prioritized.

DCR/VCU coordinated with DEQ to resolve the integration of water quality and ecologically healthy data into the *ConserveVirginia* tool. Through support from DEQ and CBIG, NHP began the enhancement of the *ConserveVirginia* tool to include the healthy waters data as a new input and to provide guidance on the implementation of agricultural BMPs as informed by the healthy waters data. DEQ began the development of their own data inputs for the *ConserveVirginia* tool to be delivered to NHP in 2021. The *ConserveVirginia* tool will be used to maximize the benefits derived from land conservation efforts within the State and is designed to include regular updates as new data are available and priorities refined, such as the inclusion of ecologically healthy waters.

The Program Manager continued to advance Healthy Waters Bay Agreement Goal of 100% protecting the 2014 HW sites in the Chesapeake Bay by 2025. The HWP Manager continued to staff the HW Goal team remaining consistent that the Commonwealth will set their own course for long-term protection action. The GIT attempting to advance a regional modeled approach for prioritizing those areas for conservation, sharing State provided data with the intent of directing actions to protect lands. This outcome will provide the basis for strongly *guiding* how the Commonwealth advances conservation but will not likely be used as more than suggestions since Virginia will be advancing an approach that integrates the proximity to ecologically valuable terrestrial features, as identified by NHP, in the weighting. The Healthy Waters Program Manager and NHP staff prepared for an upcoming GIT meeting in 2021 to present the progress on the development of the HW conservation efforts. The modeled approach seeks to identify those lands and areas needed to ensure protection of aquatic ecological health. The VA approach utilizes a refined approach focusing on state assessments for vulnerabilities and priorities. In addition the NHP approach will be integrated into the ongoing targeting of conservation and preservation as it relates to those needs under DCR.

The HWP Manager continued to work with the NHP staff refine the prioritizing of statewide SCUs and the possible redefinition of those areas draining to aquatic and riverine EOs. The proposed approach is based on a similar NHD+HD catchment areas, as outlined above, instead of a linear buffer as currently employed for SCUs. The process has broadened the consideration of the identification of SCUs and the suggested protection

area and may be based on new characterizations and evaluated as a stream conservation area. Conservation planning on a watershed basis would be a divergent from the opportunistic approach under which some conservation actions are achieved. Coordination with DCR and VCU began develop the justifiable background for advancing conservation actions and expanded to invite DEQ but more formally once the framework was established.

The HWP Manager continued to meet the request by the Secretary of Natural Resources to coordinate the development and implementation of an MOU between VA and NC in the APNEP based to advance shared watershed priorities and meet the objectives under the 2017 APNEP MOU. The MOU was signed in August 2020 and outlined the development of a Governor's Agreement between VA and NC for shared watershed priorities with allocation of resources to meeting objectives of resource protection.

c) DCR – Division of Planning and Recreational Resources

DCR-PRR reported to the National Park Service for the Chesapeake Bay Agreement for Bay water access, reporting six new sites for 2020.

In 2020, the counties of Caroline, King George, Spotsylvania, Stafford, Richmond, Essex, Westmoreland and Lancaster Counties, and the City of Fredericksburg, requested extension of the Rappahannock River from the Maysfield Bridge, Route 3, downstream to the Chesapeake Bay for possible Scenic River designation. In October of 2020 over the course of three different trips, an evaluation was completed by staff from the Department of Conservation and Recreation (DCR) and Friends of the Rappahannock (FoR). The first section studied started from the previously designated section at Maysfield Bridge, Route 3, downstream to Sanders Wharf, a distance of approximately 41.5 miles. The second section studied was from Sanders Wharf downstream to Route 360 at Tappahannock, a distance of approximately 15 miles. Finally, the section from the Route 360 Bridge to Simonson, a difference of approximately 13.5 miles. The study ended before entering Lancaster and Middlesex counties; therefore ending the proposed scenic section short of the Chesapeake Bay. All totaled, the new section is approximately 79 miles. Based on the evaluations, it was determined that the three new sections, in combination, qualify for designation. The proposed section extends from Maysfield Bridge, Route 3 in Fredericksburg to Simonson through the counties of Stafford, Spotsylvania, Caroline, King George, Westmoreland, Essex and Richmond. Combined the sections add a distance of approximately 70 miles to the existing designation section of the Rappahannock River, a length of 86 miles. Combining the sections qualified for Scenic River designation gives the Rappahannock River a total of approximately 156 miles.

5) Department of Wildlife Resources (DWR)

Environmental Services

DWR's Environmental Services Section (ESS) is responsible for reviewing permit applications, policy changes, land use changes, NEPA documents, land development projects, water supply or intake projects and other items to ensure avoidance of impacts upon threatened, endangered, and tiered species; designated wildlife resources; and any of the programs or resources over which we have jurisdiction or our constituents have an interest. DWR's ESS staff work closely with our conservation partners, permitting agencies and others to ensure projects located within the coastal zone are consistent with the Enforceable Policies of the Coastal Zone Program, if necessary, and/or that any permits issued for the work appropriately consider necessary wildlife and habitat protections.

Wetlands

Mitigation Banking

DWR ESS staff continues to participate on the Inter-Agency Review Team that oversees stream and wetland mitigation banking and provide input on new banks all over Virginia, including the coastal zone. Numerous proposals have been made for new banks and/or additions to existing banks within the coastal region of Virginia during this reporting cycle.

NonGame Species Monitoring and Research

Atlantic Slope Freshwater Mussel Propagation

The Virginia Department of Wildlife Resources continues its cooperative Atlantic Slope freshwater mussel propagation facility with the U.S. Fish & Wildlife Services' Harrison Lake National Fish Hatchery (HLNFH) in Charles City, marking the 14th year of production and 15th year of operation at the Virginia Fisheries and Aquatic Wildlife Center (VFAWC). Propagation for the 2021 season began with collection of freshwater mussel broodstock in October 2020. Thus far, we have collected 149 individuals of ten species from ten rivers (Table 1).

Our partners with the Anacostia Watershed Society collected Eastern Pondmussel (*Ligumia nasuta*), Eastern Floater (*Pyganodon cataracta*), Eastern Lampmussel (*Lampsilis radiata*), and Alewife Floater (*Utterbackiana implicata*) from the Anacostia River, Washington D.C. in October, November, and March. North Carolina State University staff collected gravid Tidewater Mucket (*Leptodea ochracea*) from Lake Gaston and Chowan River in October and March. United States Fish and Wildlife Service (USFWS) and Maryland Department of Natural Resources staff collected gravid Plain Pocketbook (*Lampsilis cardium*) from the Potomac River in October from Jefferson County, WV and Washington County, MD, respectively. VFAWC collections began in March with collection of Alewife Floater and Tidewater Mucket from the Rappahannock River, King George County. A trip to the Cacapon River, Morgan County, WV, in mid-March, provided brooding Brook Floater (*Alasmodonta varicosa*), Plain Pocketbook, and Triangle Floater (*Alasmodonta undulata*). This trip was followed by two successive trips to collect Triangle Floater and Creeper (*Strophitus undulatus*). One in the South River, Augusta County and the other, a new site on Smith Creek, Rockingham County. In early April, VFAWC collected brooding Eastern Pondmussel and Tidewater Mucket from the Nottoway River, Southampton County. In early to mid-April, we completed Green Floater (*Lasmigona subviridis*) collections in Back Creek, Berkeley County, WV, Rappahannock River, City of Fredericksburg, and Dan River Rockingham County, NC. All broodstock collection counties are in the state of Virginia unless stated otherwise. All broodstock collected in October and November of 2020 overwintered at HLNFH in floating mussel baskets on ponds.

Propagation season began with *in vitro* mussel propagation. We have completed fifteen *in vitro* trials and have six in progress for six species including: Tidewater Mucket, Dromedary Pearlymussel (*Dromus dromas*), Pheasantshell (*Actinonaias pectorosa*), Fanshell (*Cyprogenia stegaria*), Triangle Floater, and Creeper. We are currently monitoring 33 Green Floater for the spontaneous release of metamorphosed juveniles from the aforementioned drainages. We have conducted 18 traditional fish inoculations of five species thus far, including: Tidewater Mucket, Eastern Pondmussel, Plain Pocketbook, Alewife Floater, and Brook Floater.

Our target production goal for 2021 is 914,000 juvenile mussels of 15 species with grow out and release of approximately 50K mussels. Most of the species targeted for propagation in 2021 are not listed as threatened or endangered, but all are listed either as a species of greatest conservation need in Virginia's Wildlife Action Plan, species of concern by the USFWS, or are being produced as part of Natural Resource Damage Assessment and Restoration settlements. Work with federal and state endangered James Spiny mussel (*Parvaspina collina*) continues for the 7th year and we are again focusing efforts on the state-endangered Brook Floater and the state-threatened and federally petitioned Green Floater. This year, we received funding to work with several Tennessee drainage mussel species in a limited capacity. Three species: Dromedary Pearlymussel, Pheasantshell, and Fanshell will be propagated via *in vitro* production methods at Virginia Commonwealth University's Rice Rivers Center. We will metamorphose these species there and return the individuals to

Virginia Department of Wildlife Resources' facility, the Aquatic Wildlife Conservation Center in Marion, VA, for culture and grow out.

Currently, we are holding nearly 5,000 James Spiny mussel propagated in 2019 and 2020 that are approximately 5-25 mm in length. We are also holding nearly 8,000 Green Floater (14-28 mm in length) propagated in 2019 and 2020 and just over 2,000 Brook Floater (19-45 mm in length) propagated from 2018-2020 for release. In addition to propagation during 2020, numerous sub-adult mussels propagated from 2018-2019 are being held for continued grow-out and release. After the fall reporting period for 2020, we released 12,850 mussels of seven species including 660 Brook Floater and 222 Green Floater (Table 2).

Table 1. Planned and completed broodstock collections for the 2021 propagation season.

Mussel Species	Water Body	Number Collected	Date Collected	Production Goal
<i>Alasmodonta undulata</i>	Cacapon River*	4	3/11/21	
	Smith Creek*	3	3/17/21	3,000
	South River*	3	3/15/21	
<i>Alasmodonta varicosa</i>	Cacapon River	15	3/11/21	10,000
<i>Elliptio complanata</i>	Broad Run/Bull*	-	-	2,000
	Run/Cacapon River*			
	Anacostia River*	-	-	500
<i>Elliptio fisheriana</i>	Broad Run/Bull Run*	-	-	-
<i>Fusconaia masoni</i>	Dan River	-	-	500
<i>Lampsilis cariosa</i>	Nottoway River	-	-	50,000
<i>Lampsilis cardium</i>	Cacapon River	5	3/11/21	
	Potomac River	13	10/2/20, 10/5/20	100,000
<i>Lasmigona subviridis</i>	Back Creek	13	04/7/21	100,000
	Dan River	14	04/14/21	50,000
	Rappahannock River	6	04/9/21	50,000
<i>Lampsilis radiata</i>	Anacostia River	2	10/27/20, 11/3/20	10,000
<i>Leptodea ochracea</i>	Chowan**	12	10/27/20, 3/30/21	-
	Lake Gaston**	11	10/27/20, 3/25/21	-
	Nottoway	1	3/25/21	-
	Rappahannock*	3	3/10/21	-
<i>Ligumia nasuta</i>	Anacostia River	6	11/6/20, 3/12/21	5,000
	Nottoway**	8	3/25/21	-
<i>Parvaspina collina</i>	Mill Creek			15,000
<i>Pyganodon cataracta</i>	Anacostia	4	10/9/20, 11/3/20, 3/12/21	1,000
<i>Strophitus undulatus</i>	Smith Creek*	9	3/17/21	
	South River*	1	3/15/21	2,000
<i>Utterbackiana implicata</i>	Rappahannock	13	3/10/21	500,000
	Anacostia	3	10/27/21, 3/12/21	15,000
		149		914,000

**In vitro* propagation research and development.

**No goal set. Animals will be produced as needed for North Carolina State University.

Table 2. VFAWC freshwater mussel releases from October 2020 to April 2021.

Species	Release River	Broodstock River	Number	Release Date	Age (years)	Mean Length (mm)
<i>Alasmidonta undulata</i>	South	South	332	11/05/20	2+	36.3
<i>Alasmidonta varicosa</i>	SF Shenandoah	Cacapon	156	10/08/20	2+	39.9
	Broad Run	Cacapon	220	10/15/20	2+	30.4
	South	Cacapon	154	11/05/20	1+	40.7
	Broad Run	Cacapon	130	11/04/20	2+	39.4
<i>Lampsilis cardium</i>	SF Shenandoah	Cacapon	3,207	10/02/20	2+	42.0
	SF Shenandoah	Cacapon	1,256	10/08/20	2+	46.1
<i>Lampsilis cariosa</i>	Goose Creek	Nottoway	457	10/06/20	1+	23.4
	James	Nottoway	584	10/23/20	1+	31.9
	James	Nottoway	579	10/28/20	1+	37.1
	South	Nottoway	325	11/05/20	1+	31.5
<i>Lasmigona subviridis</i>	Dan	Dan	222	10/05/20	1+	32.7
<i>Strophitus undulatus</i>	South	South	309	11/05/20	1+	48.7
<i>Utterbackiana implicata</i>	James	Rappahannock	4,919	10/23/20	1+/2+	53.63
			12,850			

Tidal Rivers Program:

- VDWR conducted community sampling in the James and Chickahominy Rivers via boat electrofishing from September to November 2020. All fish were weighed and measured; otoliths were collected from a subsample of Largemouth Bass. A total of 128 otoliths were collected from Largemouth Bass in the James River and 88 otoliths were collected from the Chickahominy River. Otoliths will provide baseline age and growth data for Largemouth Bass in the face of the Alabama Bass invasion.
- VDWR conducted selective sampling for invasive Alabama Bass in the Chickahominy River via boat electrofishing in November 2020. No Alabama Bass were detected during sampling but Alabama Bass presence has been confirmed in Diascund Creek, tributary to the Chickahominy River.
- VDWR conducted selective sampling for invasive Snakehead in the Pamunkey River via boat electrofishing in November 2020 and March 2021. One Snakehead was captured and two other Snakehead were observed in March 2021, confirming Snakehead presence in the Pamunkey River.
- The typical fall standardized sampling on the tidal Rappahannock River was not completed during the month of October.
- Electrofishing surveys of Hoskins Creek and Piscataway Creek of the tidal Rappahannock River were conducted on March 4, 2021.
- The upper reaches of the Piankatank River were sampled on March 11, 2021 targeting yellow perch.

Back Bay and associated tributaries:

- Back Bay- Fisheries community sampling by boat electrofishing during 21 days in October and November of 2020, Genetic sampling for hatchery -origin Largemouth Bass. Water quality for general water quality parameters on each sampling day.
- North Landing River- Fisheries community sampling by boat electrofishing during two days in October 2020, Water quality for general water quality parameters on each sampling day.

Northwest River- Fisheries community sampling by boat electrofishing during two days in October 2020, Genetic sampling for hatchery -origin Largemouth Bass. Water quality for general water quality parameters on

each sampling day. Two days of Alosine sampling via boat electrofishing during March of 2021. Adult Alewife and Blueback Herring collected on the spawning grounds located above the Rt. 168 bridge.

SECTION B.3 FEDERAL CONSISTENCY

During the period of October 1, 2020 and March 31, 2021, the Office of Environmental Impact Review/Federal Consistency (OEIR) reviewed 72 development projects for consistency with the Virginia Coastal Zone Management Program (VCP). This represents 65% of the total amount of projects reviewed (110) during this period. Major state projects accounted for 17 projects, 8 were State Corporation Commission reviews, 13 were National Environmental Policy Act (NEPA) documents without a federal consistency component, 43 were federal actions, and 29 were federally funded projects to state or local governments. The 43 federal actions included 31 federal agency activities, 12 federal licenses and approvals, and 0 outer continental shelf projects. The 31 federal agency activities included 19 projects submitted under the residual category pursuant to the federal consistency regulation (15 CFR 930.31(c)), which consisted of federal funding to private citizens such as U. S. Department of Housing and Urban Development (HUD) mortgage insurance projects. All federal consistency determinations and federal consistency certifications were completed within the established legal deadlines.

On October 2, 2020, DEQ received NOAA's approval letter for a program changes to convert Virginia's enforceable policies into a narrative format. In addition to approving existing enforceable policies into a narrative, new enforceable policies, in narrative format, into Virginia CZM program: Wildlife and Threatened and Endangered Species and Nonindigenous Aquatic Nuisance, Predatory, or Undesirable Species as subsections in (VI) Wildlife and Inland Fisheries; and (VII) Plant Pests and Noxious Weeds. Following program change approval, DEQ prepared and released a revised Federal Consistency Manual.

On March 11, 2021, Virginia submitted a program change to the NOAA Office for Coastal Management (OCM) program change portal. The requested program change includes modification of the following existing enforceable policies of the CZM Program: (I) Tidal Wetlands and Non-Tidal Wetlands and (VIII) Commonwealth Lands.

On March 30, 2021, in conjunction with NOAA OCM, DEQ EIR provide training for coastal Planning District Commission (PDC) representatives. This training was hosted by the PDCs.

The OEIR continues to provide informal training on federal consistency requirements to consultants who prepare consistency documents for federal agencies and applicants for federal permits and maintains a website for Federal Consistency Reviews which can be accessed through DEQ's main webpage or found at <https://www.deq.virginia.gov/permits-regulations/environmental-impact-review/federal-consistency> The OEIR webpage is updated weekly.

Table 1 depicts federal projects in Tidewater Virginia reviewed from 10/1/20 to 3/31/21.

TYPE OF FEDERAL PROJECTS REVIEWED*	NUMBER OF PROJECTS COMPLETED	REVIEW PERIOD
*Direct Federal Actions	31	30-60 Days
** Federal Activities (approvals & permits)	12	90 Days
***Federally Funded Projects	29	30 Days
Outer Continental Shelf	0	45-60 Days
TOTAL	72	30-90 DAYS

*Includes 19 FCDs reviewed under the residual category of Subpart C of the Regulations. (eg. HUD Mortgage Insurances).

**These are projects reviewed under Subpart D of the Regulations. These projects include individual permits issued pursuant to Section 404 of the Clean Water Act administered by the U.S. Army Corps of Engineers.

*** These include federal assistance to state and local government reviewed under Subpart F.

FEDERAL PROJECTS REVIEWED FOR CONSISTENCY WITH THE CZMP from 10/1/17 to 3/31/18

I. Federal Agency Projects

The following projects are examples of federal agency projects subject to Subpart C of 15 CFR 930.33(a).

Revision & Reissuance of the Nationwide Permits and Virginia Regional Conditions - The U.S. Army Corps of Engineers (Corps) proposes to reissue the 52 existing nationwide permits (NWP) and issue five new NWPs. Nationwide permits are general permits issued on a nationwide basis to streamline the authorization of activities that result in no more than minimal individual and cumulative adverse environmental effects. Typically, NWPs are issued by the Corps for a five-year period. NWPs currently in effect were issued in 2017 and are not set to expire until March 28, 2022. However, two Presidential Executive Orders prompted the Corps to renew and revise the NWPs now: EO 13783, Promoting Energy Independence and Economic Growth (March 28, 2017), which instructed federal agencies to review existing regulations that potentially burden the development or use of domestically produced energy resources. Executive Order 13921 Promoting American Seafood Competitiveness and Economic Growth (May 7, 2020) contains a similar mandate.

In addition, the Corps North Atlantic Division has added Regional Conditions (RCs) to ensure those NWPs cause no more than minimal individual and cumulative adverse environmental effects based on region-specific conditions. The proposed RCs affecting the Commonwealth fall under the responsibility of the Corps Norfolk District and also include the military installations in Northern Virginia within the Corps Baltimore District. The Norfolk District is proposing Virginia RCs for the NWPs. Including the modification of three NWPs in Virginia where a programmatic general permit overlaps with those NWPs. The NWPs will go into effect in early 2021 and expire five years after the effective date. DEQ provided a conditional concurrence conditioned on applicants obtaining permits for impacts to wetlands and stream, complying with all enforceable policies of the

CZM program, and coordination by the Corps with the state to address the newly added Wildlife and Inland Fisheries enforceable policies addressing state threatened and endangered species.

Armed Forces Experimental Training Activity (AFETA) Camp Peary Integrated Natural Resources Management Plan 5 Year Update – The U.S. Department of the Army submitted a federal consistency determination (FCD) for the Five Year Integrated Natural Resources Management Plan (INRMP) Update for the Armed Forces Experimental Training Activity (AFETA) Camp Peary in York County. The document updates the existing conditions on the installation, documents any changes to the existing natural resources management issues, details new management recommendations for implementation of the INRMP, and lists potential new projects to be covered during the 2017 – 2021 period. This FCD also covers past activities. DEQ concurred that the proposed project is consistent with the Virginia Coastal Zone Management Program.

National Performance Standards for Discharges Incidental to the Normal Operation of a Commercial Vessel - The U.S. Environmental Protection Agency (EPA) has proposed regulations to establish national performance standards for discharges incidental to the normal operation of primarily commercial vessels. The EPA has determined that the proposal would have de minimis coastal effects that are likely to be environmentally beneficial. The proposed rule would establish general and specific technology-based discharge standards of performance for approximately 82,000 domestic and international non-military, non-recreational vessels operating in the waters of the United States or the waters of the contiguous zone. DEQ concurred that the proposed project is consistent with the Virginia Coastal Zone Management Program.

I-95 Northbound Rappahannock River Crossing Project - The Federal Highway Administration (FHWA) proposes to make improvements to the northbound lanes of Interstate 95 at the Rappahannock River crossing (aka I-95 NB Collector-Distributor Lanes-Rappahannock River Crossing Project) in the City of Fredericksburg and Stafford County, Virginia. The Project will be undertaken by the Virginia Department of Transportation (VDOT) in cooperation with the FHWA, and includes improvements to an approximately 6-mile-long section of the I-95 corridor between mile markers 130.5 and 135.9. The Project involves construction of an extension of the exit ramp from state Route 3 (Exit 130) to northbound I-95, creation of northbound I-95 collector distributor (CD) lanes through US Route 17 (Exit 133), the extension of a northbound auxiliary lane to Exit 136, and the reconstruction of the existing CD lane bridge over US Route 17. The Project also includes construction of a fourth I-95 Bridge over the Rappahannock River. DEQ concurred that the proposed project is consistent with the Virginia Coastal Zone Management Program.

II. Residual Category

The following are examples of consistency determinations submitted as a residual category of Subpart C pursuant to the federal consistency regulation 15 CFR 930.31(c).

Place One Apartments – Partner Engineering and Science, Inc. submitted a FCD to satisfy the U.S. Housing and Urban Development (HUD) environmental due diligence requirements for a multi-family project, identified as Place One Apartments, which is located at 4265 Sprenkle Lane in Henrico County. No ground disturbance or new construction is proposed. Project activities include the following: removal and replacement of carports for dry rot repairs, repairing the parking lot, and removing and replacing existing roofing. DEQ concurred that the proposed project is consistent with the Virginia Coastal Zone Management Program.

Sheetz Retail Gasoline Station (USDA #37) - The U.S. Department of Agriculture (USDA) proposes to provide Higher Blends Infrastructure Incentive Program grant funding to Sheetz, Inc. (applicant) in support of the construction of the proposed Sheetz Retail Gasoline Station (USDA #37) located at 8203-8211 Ladysmith Road, Ruther Glen in Caroline County, Virginia. The project involves the construction of a Sheetz convenience store with a higher blend fuel offering. The scope of work includes construction of a 6,077 square foot building,

parking lot, dispenser canopy, an underground storage tank (UST) system, ingress and egress points from Ladysmith Road, installation of utilities, and construction of storm water controls. The 2.36-acre property is currently undeveloped and wooded. WHC Associates currently owns the land. Ladysmith HHH, LLC, has a binding contract to purchase the property and intends to lease the property to Sheetz, Inc. DEQ concurred that the proposed project is consistent with the Virginia Coastal Zone Management Program.

III. Federal Activities (Permits, Licenses and Approval)

These projects are examples of federal consistency certifications reviewed pursuant to Subpart D of the Consistency Regulations (15 CFR §930.53):

Kentucky Farms Parcel Acquisition, Newport News-Williamsburg Airport - The Peninsula Airport Commission (applicant) proposes to acquire two undeveloped parcels located in the Kentucky Farms neighborhood in York County in support of the Newport News-Williamsburg International Airport (PHF or Airport). The two parcels are located approximately 0.3 miles north of the end of Runway 20 and partially fall within the Runway 20 Runway Protection Zone (RPZ) and within the Airport's 65 decibel noise contour. The Federal Aviation Administration (FAA) recommends that airports own the RPZs in fee simple in order to prevent incompatible development within the RPZ. The FAA also recommends that airports acquire land within the 65 decibel noise contour in order to mitigate noise impacts on the surrounding community. The Airport will not be developing or constructing anything on the parcels. The first parcel is 3.55 acres and the second parcel is 2.86 acres resulting in a total area of 6.41 acres. Acquisition is anticipated to occur in 2020. DEQ concurred that the proposed project is consistent with the Virginia Coastal Zone Management Program.

Van Buren Road Extension - EEE Consulting, on behalf of Birchwood Management, LLC, submitted a FCC for the proposed Van Buren Road Extension Project in Prince William County. The approximately 90.88-acre project area is situated northwest of Old Stage Road and Dumfries Road (Route 234), east of Four Seasons Drive, west of Interstate 95, and is accessed via Old Stage Road. The purpose of this project is to extend Van Buren Road to the east and north to provide access to multiple land parcels, which currently have no access. The Van Buren Road extension would be initially constructed as a private road and would include a shared use path, sidewalk, drainage infrastructure, and utilities development. The initial construction would include grading for a full four-lane build out that may become a public road. The four-lane Van Buren Road extension is included in the Prince William County Comprehensive Plan and Thoroughfare Plan. Only the two-lane private road will be paved initially. Approximately 1.58 acre of palustrine forested wetlands and 1,906 linear feet of stream may be impacted. DEQ concurred that the proposed project is consistent with the Virginia Coastal Zone Management Program.

Carter's Grove Shoreline Stabilization/Living Shoreline Project - The Norfolk District of the U.S. Army Corps of Engineers is reviewing a Joint Permit Application submitted by Carter's Grove Associates, LLC (applicant) for the issuance of an individual permit pursuant to Section 404 of the Clean Water Act (CWA) (Public Law 95-217) for impacts to jurisdictional waters of the United States from the proposed Carter's Grove Shoreline Stabilization/Living Shoreline Project in James City County. Carter's Grove is a privately-owned historic property with a 38-room manor house constructed in 1755 situated next to 7,800 linear feet of James River shoreline. The proposed project would involve the stabilization of approximately 6,800 linear feet of shoreline and the construction of an 832-foot long private dock with a boat house. The design of the shoreline stabilization project incorporates a combination of stone breakwaters with sand backfill and marsh creation and the enhancement of an existing revetment totaling approximately 8 acres of impact below mean high tide elevation. Approximately 32 feet of dock will be placed over uplands and 800 feet of dock will occur below the mean high tide extending into the James River. DEQ concurred that the proposed project is consistent with the Virginia Coastal Zone Management Program.

IV. Outer Continental Shelf Activities

No projects were reviewed during the time period of this report for this category.

V. Federal Funds

The following are examples of consistency determinations submitted as Subpart F pursuant to the federal consistency regulation 15 CFR 930.90:

1243 20th Street, Unit A, HVAC System - The Newport News Redevelopment and Housing Authority (NNRHA) proposes to use Community Development Block Grant (CDBG) funding for emergency repair on the following property in the city of Newport News: 1243 20th Street, Unit A.

Bermuda Estates Site Improvements - HUD's HOMES program funding for site improvements at the Bermuda Estates Mobile Home Park located at 12331 Jefferson Davis Highway, Chester VA.

2422 Randolph St. Single Family Home - U.S. Department of Housing and Urban Development (HUD) will be providing funds via the Neighborhood Stabilization Program (NSP) to the City of Suffolk for demolition of an existing 1,056-square foot dwelling, built in 1965, construction of a 3-bedroom approximately 1,200 square foot single-family dwelling within the existing lawn footprint.

Air Power Park - Air Power Park Tidal Flooding Mitigation, Shoreline Protection and Site Drainage Improvements project located in Hampton, Virginia. The project is proposed to address ongoing flooding issues and is being reviewed in accordance with requirements of the National Environmental Policy Act (NEPA) due to funding from the U.S. Department of Defense Office of Economic Adjustment.

SECTION B.4 PROGRAM CHANGES

Virginia's revised enforceable policies, including restatements of existing policies in narrative format, and the inclusion of new enforceable policies were approved by NOAA on October 2, 2020. Included in the original submittal were statements that were not identified as enforceable or that were not approved by NOAA as enforceable. During the reporting period staff from the DEQ Office of Environmental Impact Review and the Virginia CZM Program developed and submitted program changes to NOAA to address these issues. They included modification of the existing policies for (I) Tidal Wetlands and Non-Tidal Wetlands, and (VIII) Commonwealth Lands. In addition, the requested program change included the incorporation of preamble language that includes the general policy from the Constitution of Virginia on which all of the commonwealth's environmental laws and regulations are based. This was not proposed as an enforceable policy but rather background, supporting information.

A public notice and other supporting materials were submitted to NOAA during the reporting period. The 21 day public comment period ended on April 1, 2021 and no public comments were received. After final approval from NOAA, the Virginia federal consistency/environmental impact review manual and website will be updated to reflect the changes. Training on the new enforceable policies was provided to representatives of the eight coastal planning district commissions on March 30, 2020 by NOAA and DEQ staff. Regional training opportunities for local government staff will be provided on request.